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DIESEL RAILWAY TRACTION

The March issue of this RAILWAY GAZETTE *publication, illustrating and describing developments in Diesel Railway Traction, will be ready on March 1, price 2s.*

Tothill Press Limited

FORTY years ago Transport (1910) Limited was formed to manage and produce *The Railway Gazette*. Three years later, a new weekly journal, *Shipbuilding & Shipping Record*, was produced, and in the period to 1919 a number of other railway journals had been acquired, including *The Railway Times*, *The Railway News*, *The Railway Engineer* and *The Railway Magazine*. From 1918 onwards the company produced a number of technical journals, covering a wide range of basic industries. The first of these was *The Power User*—now *Power & Works Engineering*. This was followed by *Colliery Engineering*, *The Industrial Chemist*, *Building*, *Food*, *The Crown Colonist*, *Wood*, *Diesel Railway Traction*, *Coke & Gas*, and *Water Power*. With the development of its publishing interests, the need for a title more representative of the activities of the company has become evident. Because of the situation of its offices in Tothill Street, the journals have become widely known as the "Tothill Group," and now that a change of name has been decided on, "Tothill Press Limited" has been adopted. Recently a number of subsidiary companies of Transport (1910) Limited were wound up and the assets transferred to the parent company. They included the St. Margaret's Technical Press Limited, Nema Press Limited, the Directory Publishing Co. Ltd., and the Railway Publishing Co. Ltd. In September, 1945, the control of Transport (1910) Limited passed to Odhams Press Limited. The change of name became effective on February 15.

German Industrial Progress

SEVERAL reports on the progress being made in the post-war rehabilitation of Western Germany's railway and general engineering industries indicate that the competitive position is being restored. There seems little doubt that German labour is cheaper and more amenable to progressive changes than in Great Britain and that considerably longer hours are worked. Little objection is raised to overtime, and there is a general desire among workmen to supplement their basic wages. It is believed that German production per manhour is still below pre-war. The wage-earning population, excluding Berlin, of Western Germany is of the order of 15 million, with 1½ million unemployed. Mr. C. F. I. Ramsden, Overseas Director of the Federation of British Industries, and Mr. A. W. Berry, Director of the British Engineers' Association, made a tour of Western Germany last autumn and found* that, although German industry was suffering from some serious difficulties, especially financial, in its efforts to re-enter export markets, they had no doubt these would be overcome. Then Germany's will to work and the skill of its leaders and workers would enable it to achieve a strongly competitive position in world markets. Among the items given of mechanical engineering production, general railway equipment for last year is estimated at 4,850 tons and machine tools at 45,400 tons. Locomotive production in 1948 was 19,000 tons. The average wagon turn-round figure has been reduced from 7·6 days to 4·5 days, which compares with the pre-war figure of four days for the whole of Germany.

British Investments in Brazil

BRITISH investments in Argentina were the subject of editorial comment in our February 10 issue. With regard to Brazil, a recent issue of *The South American Journal* shows that a reduction by 18 per cent. in total investments last year was greater than for the previous year, though the return improved slightly. Of the £170 million now invested a slightly higher proportion than in 1948 received no interest. In the case of British-owned railways, Government purchase of the San Paulo, Madeira-Mamore, and State of Bahia systems reduced investments by over 25 per cent. to less than half the total of 25 years ago. British-owned railways in 1949, for the first time, received no return, though the average yield has been very small since 1931. The absence of return on the remaining lines is mainly due to the negotiations for sale of the Leopoldina and Great Western of Brazil which will probably be concluded this year.

R.E. (Tn.) Supplementary Reserve Silver Jubilee

IT is fitting that Field-Marshal Sir William Slim, Chief of the Imperial General Staff, should be the Honorary Colonel of the Royal Engineers (Transportation) Supplementary Reserve at present, when the corps is celebrating its Silver Jubilee. Apart from his outstanding services during the war and his high military office, Sir William Slim was one of the original members of the Railway Executive, where he did good work and was a popular figure until recalled to the War Office in his present post. In the Burma campaign the Field-Marshal became acutely aware of the essential value of transportation in wartime operations and in peace he has never ceased to recognise it as a basic requirement for the successful prosecution of both military or civilian objectives. When he presided at the twenty-fifth annual dinner of officers of the Royal Engineers (Transpor-

* See Publications Received, p. 214

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tation) Supplementary Reserve, last Friday, he appealed to the heads of the large nationalised transport undertakings, who were present, to encourage members of their staff to join the corps. The response from the railways always has been good, although, no doubt, there is still room for improvement. It is in the docks companies that the greatest need for personnel is felt. Sir Reginald Hill, Chairman of the Docks & Inland Waterways Executive, has promised to do what he can to assist recruiting.

Welcome to Railway Recruits

ENTRANTS to the railway service will in future receive on joining a booklet entitled "British Railways Welcome You" in which are explained the set up of the undertaking and the obligations and opportunities of its staff. Sir Eustace Missenden, Chairman of the Railway Executive, wishing the new recruit a happy and successful career, recalls in a foreword how British pioneers gave railways to the world, and stresses the need for co-operation among all ranks of the staff, and the personal satisfaction of doing a job well. Throughout the booklet, indeed, special emphasis is laid on these two points. Brief chapters follow, dealing with general policy, organisation, contact with the public, welfare and conditions of service, opportunities, and so on, and the whole story is made a personal one. There are some well chosen illustrations of work in progress in the various branches of the service, including locomotive workshops, together with many excellent black-and-white sketches by Mr. R. S. Sherriffs.

Southern Region Staff Conferences

THE informal staff conferences, which Mr. John Elliot initiated in the Southern Region, when he was its Chief Regional Officer, have been continued by the present C.R.O., Mr. C. P. Hopkins. On January 24 a very successful meeting was held at Salisbury and on February 16 Mr. Hopkins, accompanied by a number of his officers, held a similar conference at Brighton. The last of the present season's meetings is to take place at Ashford on March 15. The Brighton meeting was marked, as had been its predecessors, by the wide range of discussion and the number of interesting and often valuable points which were raised by representatives of the staff. Mr. Hopkins took the opportunity to explain some of the effects which must be expected to accrue from the Government policy of reduced capital investment on the railways, a matter which is likely to become more apparent to the staff in the months to come. Under the new staff machinery which is in process of coming into being, there may, perhaps, be less need for these informal staff conferences than in the past. They serve a very useful purpose in bringing together management and men in an informal atmosphere and there seems no good reason to suppose that they have outlived their usefulness.

Area Holiday Guides

THE 1950 series of holiday guides published by British Railways presents the public with another new set of territorial boundaries. To avoid the overlapping of previous guides, England, Scotland, and Wales have been divided into five areas, which show a number of divergences from the present railway Regional organisation. This has also involved replacement of the earlier attractive covers by a coloured map showing the extent of the new areas, and further interest has been lost by the standardisation of titles, which are now in each case, "Holiday Guide Area No. —," varied only by the numeral. Travel information from the various Regions concerned has been co-ordinated and the content of the guides is very similar to their predecessors, with descriptions of holiday resorts, a number of maps, and details of hotel and boarding-house accommodation. In the guide which covers Devon and Cornwall, however, travel information has been restricted to *ex* G.W.R. lines and on the maps provided the *ex* Southern Railway lines are shown in such insignificant fashion that an erroneous impression of railway facilities in these counties may be formed. The public was well acquainted with the territories served by the main-line companies, and no doubt was becoming used to the Regional set up. It is doubtful if the present area arrangement will commend itself on the grounds of simplicity.

Eastern Region Electrification

THE electrification on the 1,500-volt d.c. overhead system of the Eastern Region main line from Manchester to Sheffield and Wath was approved by the Directors of the former London & North Eastern Railway Company in 1936. Considerable progress had been made by September, 1939, but the works were suspended during the war years, and it was not until late in the summer of 1947 that the Minister of Transport approved their resumption. The erection of the overhead structures, and alterations to many overbridges, to provide additional clearance, are now well in hand, and the construction of a new three-mile tunnel through the Pennine Range, between Dunford Bridge and Woodhead, has been begun. The distinguishing feature of the scheme is that electric traction will be used for all classes of traffic, and that this will be the first British example of a completely electrified main line. Local passenger traffic in the Manchester area will be handled by multiple-unit trains, but electric locomotives are to be used for the main-line passenger and goods services. An account of the progress made is given elsewhere.

Wagon Building at Ashford

WE publish elsewhere in this issue the first of three articles describing wagon building and repair at the Ashford, Kent, works of the Southern Region of British Railways. The first article is devoted to new construction work. This year marks the centenary of the carriage and wagon department at Ashford; the first part of the South Eastern works had been erected three years before. During the war, the introduction of the progressive system of assembly made it possible for a wagon to be turned out every hour, and in 1941-42, no fewer than 1,600 12-ton open wagons were built in twelve weeks for service in Persia. The present rate of production of new open wagons is 65 a week. The diagram accompanying the article shows the sequence of the operations which are carried out in the underframe shop. In the shop yard the steel for the frames is handled by fork-lift trucks. The work of erecting the underframe is undertaken in about ten stages, after which the wagon is moved to the body shop for sheeting. In the adjacent sawmill, extractors carry the sawdust to an incinerator, which supplies the mill with heat.

The U.S.A. Diesel Invasion

RECENT motive-power statistics show that in 1949 American railways placed on order with manufacturers 1,785 diesel-electric units. Added to the 2,661 ordered in 1948, and 2,149 in 1947, this makes 6,595 in three years. During the same period, the total orders for steam locomotives for U.S.A. railways were 146, and for electric locomotives 13. In 1949 no American railway ordered a steam locomotive from an outside builder; the only 13 units placed on order were by the Norfolk & Western Railway from its own shops. As in 1948, the Pennsylvania Railroad has been the biggest buyer, and in two years this company, whose conversion to diesel traction came later than that of some of the other major railways, has ordered 671 units. In the same two years the Southern Pacific has put 252 units on order and the New York Central System 244. The most popular diesel-electric units are the 1,500-b.h.p. B-B types, which form over half the 1949 orders and total 933, many of these being for assembly into multiple units of 4,500 and 6,000 b.h.p. Last year diesel traction handled 48·0 per cent. of the total U.S.A. passenger coach-miles, 33·0 per cent. of the gross ton-mileage of freight, and 48·9 per cent. of the yard shunting-hours.

French 50-Cycle Conversion

THE large-scale electrification under way in France, which is due largely to the efforts of the General Manager of the S.N.C.F., M. Armand, is being taken a stage further by the experimental electrification on the 20 kV, 50-cycle single-phase system of the single track connecting line between Aix-les-Bains and La Roche-sur-Foron, work on which is now proceeding actively. This combination of high voltage and industrial frequency is the same as that introduced before the war on the Höllental line in the Black Forest, and the methods used there, and the results obtained, have been studied by French engineers. The principal object is to try and evolve a system of electrification substantially cheaper than 1,500 or 3,000 volts d.c., and cheaper and more convenient than the 16·6-cycle single-phase systems of Central Europe, with the idea of electrifying secondary lines where traffic is not sufficient to warrant the expenditure involved by d.c. High-frequency locomotives are more costly than normal d.c. types, but fixed equipment is cheaper.

Railway Passenger Fares

THE decline which has been occurring in railway passenger receipts for a considerable period has brought into prominence once more the arguments for and against the granting of cheap tickets as an aid to railway net revenue. Elsewhere in this issue, an article by Mr. J. H. Laundy, who was formerly Audit Accountant of the Southern Railway, discusses this matter at some length. As he points out, opinion is divided as to whether a substantial reduction from the ordinary fare will attract sufficient numbers of additional passengers to increase gross receipts or whether, as is often contended, the loss sustained by reducing the charge to those who otherwise would have paid full fare, can never be made up by the additional receipts from new traffic. Neither theory can be proved because of the impossibility of knowing what the receipts would have been if no change had been made.

After considering a number of aspects of the matter, the writer of the article reaches the conclusion that it is unlikely that any scheme involving reduction of fares, whether by lowering the standard or by introducing additional cheap facilities, would attract a sufficient number of extra passengers to maintain the receipts which were realised in 1948.

There are, however, other considerations to be borne in mind when considering a policy of cheap fares. There can be little doubt, as was suggested in an editorial note in our last week's issue, that the present level of railway fares in general is a deterrent to travel, bearing in mind the many calls which are now made on an individual's much reduced personal spending margin. It may well be true that when cheap fares of various kinds are introduced by the railways, there can be little prospect in general of attracting a sufficiently great addition to the number of fare-paying passengers to result in an overall increase in the gross revenue. This is particularly true at times such as the present when the general trend of passenger travel is downward. On the other hand, to the extent that passengers are falling away by reason of disinclination or inability to pay a higher fare, the decline in the numbers of passengers may be checked by the introduction of special cheap rates and some traffic may be attracted which otherwise would not have passed at all. To that extent, it is reasonable to suppose that the net result of a cheap fare policy may be a better net revenue than otherwise would be the case.

Before the war, the very large majority of passengers travelled by cheap fares. Of originating passenger journeys (other than by season, workmen's tickets, Government warrants, and so forth) in 1938, for example, totalling 552,308,000, only 77,798,000 were by ordinary fares and 51,665,000 by monthly return fares, giving a total of 129,463,00. Excursion, weekend, cheap day and similar tickets accounted for no fewer than 422,845,000 originating passenger journeys or 76·56 per cent. of the overall total.

During 1948, when, because of the aftermath of the war, very few cheap facilities had been restored, the position was very different. The total of originating passenger journeys (other than by seasons, workmen's, etc.) was 406,034,000, of which 69,314,000 were ordinary fares and 252,034,000 were monthly return and period excursions, a total of 321,348,000. Excursion, weekend, cheap day, and similar tickets accounted for only 84,686,000 journeys or 20·86 per cent. of the total.

During last year, the issue of cheap tickets continued to be extended, but they were by no means comparable with those obtainable in 1938. Nevertheless there was a very large increase in the use made of them by passengers. For the first eleven months of 1949, the total originating journeys numbered 396,800,000 (again excluding seasons, workmen's, etc.). Travellers by ordinary fares were 54,288,000 and by monthly return 183,635,000, a total of 237,923,000. On the other hand, users of excursion, weekend, cheap day and similar tickets rose to 158,877,000 or 40·04 per cent. of the total. The position is summarised in tabular form below.

BRITISH RAILWAYS ORIGINATING PASSENGER JOURNEYS

(other than on season or workmen's tickets, Government warrants, etc.)

	1938	1948	1949 (11 months)
	000s	000s	000s
Ordinary fares	77,798	69,314	54,288
Monthly return and period excursions	51,665	252,034	183,635
Total	129,463	321,348	237,923
Excursion, weekend, cheap day, etc.	422,845	84,686	158,877
Grand Total	552,308	406,034	396,800
Percentage of excursions, weekend, cheap day, etc., to grand total ...	76·56	20·86	40·04

There have been certain significant results from the re-introduction of cheap day fares on their present limited scale. Insofar as the extra passengers have been carried by ordinary trains already in service, and the cost of providing special trains has not arisen, it has been clear in many cases that the better loading achieved has made cheap fares an economic proposition from the railway point of view. Last year the response in some cases to advertised excursions was so great as to encourage the belief that even where special trains had to be provided the lower fares would still be a paying proposition. There were also cases in which traffic had to be refused because of the inability to provide sufficient rolling stock. There are grounds for believing that the cheap fares have created new traffic, and not merely diverted existing business from road transport. This appears to be confirmed by the published results of the British Transport Commission, particularly in respect to the provincial and Scottish bus businesses, which showed an increase in passenger journeys of 4·63 per cent. during 1949.

In granting cheap fares the Railway Executive has been selective in the services covered. It has extended concessions where it has been felt they have been most needed, and where they are most likely to achieve the desired result of retaining or creating passenger traffic. There is reason to believe that this has had the effect of achieving far better net revenue results than would have been produced by a broader grant of concessions.

The policy of the Railway Executive appears to be to extend the availability of cheap fares, so far as it is practicable, but in present circumstances there are very definite limits to what can be done in this direction. The economies which are being forced on the railways as a result of Government policy will not permit full advantage to be taken of this means of attracting passengers. Passenger rolling stock is in short supply and many more vehicles are required to deal adequately with present and potential traffic; and much of it is in a poor state of repair and overdue for renewal or replacement. Until this can be done the amenities which can be afforded passengers must suffer. Moreover, the inability to go ahead with schemes of modernisation of way and works or even the proper maintenance and renewal of track so that train schedules can be improved, must hamper the railways in their endeavours to attract passenger traffic.

Growth of International Freight Traffic

AT a meeting of the Southern Region Lecture & Debating Society on February 15, Mr. R. E. Sinfield, Continental Superintendent, Southern Region, British Railways, read a paper in which he traced the development of international freight traffic during the past 100 years, from the time when Parliament was persuaded that a better and more cohesive service could be provided if the railways were allowed to run their own ships. Through railway-operated services thus began, with poor connections at first compared with the standards of today, but nevertheless providing an improvement of which the railways could then be proud. Meanwhile, following the lead set by this country, the network of railways had been spreading from European capitals and centres of industrial areas, each project independent of the other; moreover, differences of loading and constructional gauge, couplings, and so on, prevented anything more than mere meeting at frontier barriers.

Railways even within their own countries could not agree on their own systems, let alone with railways in other countries, and, therefore, at the instigation of the Swiss an international body was set up to decide what standards were to be adopted by the railways of Europe. As a result, "Les Conférences Internationales pour l'Unité Technique des chemins de fer" commenced operations in 1882. It was not enough, however, to regulate the technical aspects of wagons passing from one railway system to another. There were commercial considerations to be agreed, and it was interesting to note, said Mr. Sinfield, that one of the earliest commercial agreements was drawn up in 1846 by the Prussian Railway Administrations.

The first real move to establish inter-Governmental understanding on the commercial conditions of rail transport was made by the Swiss Government in 1874. A series of inter-Governmental meetings was held at Berne from 1876 onwards and the range of discussions enlarged. Gradually, the Berne Convention on the Transport of Merchandise took shape, and it was finally ratified on October 14, 1890, coming into force on January 1, 1893. At a new conference in 1923, a revision of the Berne Convention was taken in hand, which resulted in separate conventions being laid down for goods traffic and for passenger traffic—the C.I.M. and C.I.V.—and thus an international legal code for railway conveyance of goods was born. In 1947 all European countries except the U.S.S.R. accepted the conditions either in full or in part. After the recent war the Governments of the United Nations decided to set up a body called the European Central Inland Transport Organisation (E.C.I.T.O.) to sort out the problems of European transport. From the start, however, there was a resurgence of the pre-war international organisations, and its task was made extremely difficult by countries which were not anxious to have the proper ownership established. On general lines, a census of wagons took place, but many eastern and central countries failed to subscribe to it.

Mr. Sinfield also referred to cross-Channel train ferry services. The first services were introduced during the first world war for the movement of military traffic to and from France. After the war the vessels were acquired by an organisation known as Great Eastern Train Ferries Limited, the terminal removed to Harwich, and a service was instituted between that port and Zeebrugge in 1924. The Southern Railway had made a close study of this problem. Before the war, he said, the train ferries performed two double crossings daily, and for a short summer season three double crossings daily. Since the war, however, not only had three double trips daily been run, but last year four double crossings daily were maintained for many months. This year the target was to be higher. Less time in transhipment was the big problem, and though containers provided a good answer, they did not suit every type of traffic. During the development of the international container, the railways had a different scheme in view, and the cross-Channel train ferry was the result. The problem of refrigeration had been tackled and overcome on the Continent and refrigerated wagons were passing through from country to country. With the introduction of the ferries, moreover, complete through refrigerated transport for perishable produce could be offered, right from the agricultural areas of Europe to London, and British Railways were now directly interested in International Refrigeration Wagons.

The U.S.A. Railways in 1949

AT intervals during the past 12 months we have published brief articles on current railway developments in the United States, as disclosed by the amp'e statistics which the Association of American Railroads circulates regularly. We concluded that the persistent decline in wagon loadings below 1948, and still further below 1947, indicated a recession in American trade and industry, despite reports from some quarters that business was at a satisfactory level. A review of railway operations in 1949, prepared by Dr. J. H. Parmelee, Vice-President & Director, Bureau of Railway Economics, A.A.R., appeared in the January 7 issue of our American contemporary, the *Railway Age*, and showed that we were not mistaken. The level of economic activity in the States, as measured by the index of industrial production, was fully 8 per cent. below 1948. This decrease contrasts, ironically enough, with a rise of 5 per cent. in the corresponding British index. The set-back in the States hit the railways hard, because prolonged stoppages in the coal-mining and steel industries deprived them of heavy traffics, which they almost monopolise, while other carriers competed for high class merchandise at a time of falling output.

The outcome was that 1949 wagon loadings numbered 36 million, a decrease of 6·5 million from 1948, or nearly 16 per cent. The number of wagons loaded was the lowest for any year since 1939, when the figure was 33,912,000. The fall in net-ton miles below 1948 was 108,000 million, or almost 17 per cent. This large decrease represents more than four times the total ton-mileage of British Railways and was the greatest reduction in history for a single year. Yet the 530,000 million net ton-miles worked last year were 59 per cent. above the 1939 total, demonstrating that the commercial prosperity, brought to the States by the war and its aftermath, subsists, though it has passed its peak.

The table below compares, for 1949 and 1939, the stock averages used to judge the efficiency of freight train working.

Average	1949	1939	Per cent. improvement
Wagon load (net cons)	31	27	14
Train load ,, ,, ...	1,140	813	40
Daily mileage of wagons	43	36	19
,, ,, ,, locomotives ...	112	104	7
Train-speed (m.p.h.)	16·9	16·7	1
Net ton-miles per freight train hour	19,150	13,450	42

Over the period of 10 years operating results have improved satisfactorily on the whole, though the increase in freight train speed is disappointingly small. In great measure the improvement is due to a record capital expenditure of $1,285 million last year, coming on top of the large sum of $1,273 million spent in 1948. Either of these amounts was nearly five times the cost of capital betterments in 1939. Last year about three quarters of the money was spent on new equipment and one quarter on permanent way and structures. Some 1,700 diesel-electric locomotives were put into traffic and nearly 100,000 wagons. Centralised traffic control was installed on 1,200 miles of road, 78 miles of new line were built, and 7 freight shunting yards were mechanised. All these works were designed to give more mobility.

The trend of passenger travel during 1949 was similar to the change in freight movement. Passenger-miles at 35,000 million were 15 per cent. below 1948, but 54 per cent. over 1939. The average passenger train carried 94 passengers against 58 in 1939 and ran at 38·5 m.p.h. compared with a speed of 36·9 m.p.h. ten years before. The number of new passenger cars put into service was 970;

in 1939 the number was 276. The prices of new rolling stock were high—about $100,000 for an ordinary coach and twice that amount for a luxury vehicle of special design. Last year's passenger revenue was 10 per cent. below 1948 and was rather less than a tenth of total operating revenues. It is not surprising that the railways have placed further orders for only 138 passenger train vehicles to be delivered this year.

Dr. Parmelee estimates the total 1949 operating revenues of the U.S.A. railways at $8,550 million, about 11 per cent. below the 1948 revenue of $9,672 million. Operating expenses are reckoned at $6,850 million, about 8 per cent. below the 1948 figure of $7,472. The decrease in revenues was thus nearly twice the decrease in expenses and the operating ratio rose from 77 per cent. to 80. Net railway operating income (earnings before charges) declined by nearly one third to $675 million, representing a return of 2·75 per cent. on property investment, compared with a return of 4·24 per cent. in 1948. Net income (after charges) fell by 42 per cent. to $400 million. Between 20 and 30 Class I railways were left in financial straits.

In the effort to improve the income account by making economies, the railways reduced the average number of their employees in 1949 by 136,000, or 10 per cent., to 1,191,000. Paybill totals, however, were cut by only 8·5 per cent. as concessions to the staff raised the average annual earnings per head by $66 to $4,361. In 1939 the staff numbered 988,000 and were paid $1,887 on an average. The annual remuneration of an employee has thus risen by 131 per cent. in 10 years. Prices of fuel, materials and supplies were also high. The 10-year rise from 1939 was 112 per cent. for fuel and 87 per cent. for other stores.

All these costs are likely to remain on a high plane during 1950 and the year has begun with a fresh crop of labour disputes in the coal-mining and manufacturing industries, which will curtail traffics. The immediate outlook for the railways is not promising, but, taking a long-term view, Dr. Parmelee thinks that their prospects "may be regarded with a reasonable amount of optimism." In reaching this conclusion he is influenced by the fact that "there is growing awareness, on the part of government and the public, of the necessity of maintaining railroads in a condition of financial health, in order that they may serve both the freight and passenger requirements of the nation, in times of either peace or emergency."

Kowloon-Canton Railway

THE report for the year ended March 31, 1949, of the Kowloon-Canton Railway, of which Mr. I. B. Trevor is General Manager, refers to typhoon damage and attacks by bandits in Chinese territory, differences with the Chinese Customs over frontier formalities, and a concession by the authorities at Canton regarding non-stop trains between Canton and British territory. Gross receipts reached a record of $7·1 million, with a net revenue of £3·6 million, compared with $6·4 million and $3·1 million for the previous year. Import restrictions caused foreign goods traffic to fall from $586,000 to $239,000.

The following are some of the principal results:—

	1947-48	1948-49
	Thousands	
Goods tonnage conveyed	122	80
Passenger journeys	2,876	3,879
	$ H.K. thousands	
Goods receipts	634	310
Passenger receipts	5,297	6,195
Gross railway receipts	6,431	7,076
Railway operating expenditure	3,302	3,480
Net operating revenue	3,129	3,596

At the end of the year under review, all deficits accumulated since the opening of the line in 1910 could be wiped out, and a sum set aside representing 3½ per cent. interest on the new rehabilitation loan, with first amortisation payment of $776,000 based on repayment over 25 years against this loan. The decline of Chinese currency and the introduction in August, 1948, of the gold yuan caused many complications. Local passenger traffic broke a record, and consisted largely of intensive travel by traders, runners, and smugglers across the frontier.

Removal of speed restrictions resulted in acceleration in British territory, but attacks by bandits on the Chinese Section necessitated daylight running only, and consequent abandonment of a new through timetable. Non-stop trains were run, however, between Kowloon and Canton in 3 hr. 55 min. Austerity locomotives, acquired since the war, which had been built as a short-term alleviation of the European motive-power shortage, proved hard to maintain, many spare parts supplied becoming useless due to wear of the locomotives. Almost all goods vehicles had been fitted once more with air brakes by the end of the period.

An Electric Traction Vocabulary

INCREASING interest in electric traction, of which the forthcoming Institute of Electrical Engineers convention, preliminary details of which were given in our issue of December 23 last, is evidence, will be accompanied by a greater volume of literature on the subject. There has been much development since the standard text books were written, a great deal of it on the Continent, and it must have occurred to many readers of translated technical articles that the accepted English vocabulary of electric traction terms has to be stretched somewhat to meet modern conditions. It is true that our "nose-suspended motor" has an approved word-for-word translation in French, but we seem to lack a satisfactory term for the motor that is mounted independently of the axle it drives. In France the two categories are defined (in literal translation) as "suspended by the nose" and "fully suspended." At one time the descriptions "nose-suspended" and "frame-mounted" served well enough in this country, but the latter does not make it clear whether the motor is attached to the main or the bogie frames, and the days have gone when the motor that was not nose-suspended in the bogie must be associated with drive from the main frames to a fixed wheelbase. In the process of defining the two methods of motor suspension, it would be well to consider whether "axle-hung" should not be standardised for the older one. It is equally characteristic and more explanatory.

Until quite recently it was satisfactory to speak of a "power bogie" locomotive, and to let the term imply that all axles are motored. Now we have designs with two power bogies and two non-motored axles in leading and trailing pony trucks. Such a machine qualifies for the description "power bogie" in that it does not have a fixed driving wheelbase, but the usual assumption going with the term that all the weight is used for adhesion is incorrect. French technical literature now refers to locomotives with power bogies alone as "total adhesion" machines. This leaves the alternative definition available for power bogie locomotives with non-driving pony trucks, but still does not provide for designs such as the recent 1-Do-1 class in Holland, in which the outer driving axles are associated with the leading and trailing bogies but the central pair is attached to the main frames.

On the electrical side there are some anomalies in methods of stating the degree of field-weakening used in d.c. machines. British practice is to state the value given by a weak-field notch as a percentage of full field, but Continental descriptions usually quote the percentage reduction. For example, a notch giving 30 per cent. of full field would be described as effecting a reduction of 70 per cent. Another confusing and very general practice is to use the term "inductive shunt" both for the inductance itself and the circuit in which it occurs. This circuit probably includes a diverter resistance, which, being in parallel with the field, is certainly a shunt, while the choke coil in series with it gives the combination inductive characteristics. But to say that field weakening is obtained by inductive shunts, and then to associate this term—in the caption to an illustration, for example—with the coil alone, may be misleading. Most of these matters are self-evident to electrical engineers (just as the signal engineer knows whether "C.T.C." refers to centralised traffic control or coded track circuits), but a tightening up of terms would help the newcomer.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Regional Redistribution

February 14

SIR,—The announcement on page 173 of your issue of February 10, giving details of adjustments of Regional boundaries, only seems to be a further step in the process of making the Regions nothing more than meaningless symbols. It would seem to make the future production of Regional timetables almost impossible. A traveller from Marylebone to Sheffield *via* Aylesbury will now pass through four Regions (regarding the new London Transport section as a Region). Competition between the Regions will soon be impossible too, except perhaps for station garden or allotment contests!

Yours faithfully,

J. B. LATHAM

18, Wheatsheaf Close, Woking

Large Wagons and Continuous Brakes

February 10

SIR,—I noted in your issue of January 20, under the heading "Large Wagons and Continuous Brakes," a letter from Mr. G. Richard Parkes, and also a letter from Mr. E. R. B. Roberts on the wagon turn-round.

I should be glad to know the real reason why we cannot adopt the same design of large wagons as used by foreign and Commonwealth railways. I have had much experience of Colonial, Indian, and South African railways on which high-capacity wagons are used (from 10-50 ton loads).

The saving in time with large-capacity wagons and the speed of our freight trains might surely balance the cost of bringing into use such wagons, especially if all goods wagons built henceforth were vacuum-fitted and close-coupled, although consideration would have to be given to the design of coupler in view of shunting operations.

In conclusion, I fully agree with Mr. Roberts's argument that large firms, works and factories would benefit by the use of large wagons.

It is high time that the powers that be should concentrate on the fact that something must be done and issue instructions that all new wagons henceforth must be fitted with a continuous brake.

Yours faithfully,

W. EVETTS

Hampton, Tackley, Oxford

Wagon Turn-Round

February 6

SIR,—"Traffic Apprentice" is to be congratulated on drawing from Mr. E. R. B. Roberts, in your February 3 issue, an admission of his ignorance of British conditions which will be welcomed by those luckless railwaymen who have been castigated at more or less regular intervals during recent years. One might justifiably conclude that Mr. Roberts's experience of private sidings is confined to establishments relying entirely on the railway to shunt and set their wagons, a feasible practice on two or three short spurs, but most inconvenient where it operates on layouts covering an extended area.

Train engines and industrial locomotives work in the exchange sidings which in some instances, as collieries, are on private land and in others may take the convenient form of double-ended sidings or a small yard laid on railway property alongside the running lines. Internal service lines are usually barred to the railwayman and even the small six-wheel railway-owned shunter might find its 13-ft. 6-in. wheelbase a source of trouble. Mr. Roberts must have observed the close wheel spacing of many industrial 0-6-0 engines and the necessity of relying on the 0-4-0 to get round curves of 2 or 1½ ch. radius.

Colliery screens cover a number of tracks and the building can form an integral part of the pithead structure. Almost invariably the movement of wagons under the loading points is effected by gravity and as a result the headroom may be insufficient for the colliery locomotives, never mind the main-line variety. Quite a lot of pits have insufficient coal reserves to provide a working life which would justify wholesale rebuilding of the surface plant.

Steel works frequently provide examples of sharp curvature in both horizontal and vertical planes as well as limited clearances. Whilst recognised as undesirable features, it is rarely possible to do much about them in existing works, especially when the track is built into the structure of the plant itself. The outwards loading banks can accommodate the largest wagons in use, but the humble coal or coke wagon must be able to go anywhere.

These remarks are of an elementary nature to occupy your columns, but are evidently necessary. Does Mr. Roberts propose to scrap all the hoists at the South Wales docks or is short-haul shipment coal excluded from his strictures? Possibly so, as it is not unknown for 20-ton hoppers in this trade to be loaded twice on the same day. We may take heart from his inclusion, for the first time I believe, of the 20-ton hopper among the desirable wagons and be duly grateful that there is one vehicle on a 10-ft. 6-in. wheelbase fit to continue in service.

Finally, should Mr. Roberts desire an invigorating holiday with easy access to much good walking country, I would recommend a visit to the North-East Coast. He will be able there to study the working, since about 1913, of 40-ton hoppers from Ashington to Blyth, and then move on to Seaham where the diminutive chaldron wagons are not so much removed from the days of Stephenson. For the remainder he will find his fill of hoppers, mostly 20 tons, elevated track coal depots, and a system of working shipment traffic without extensive groups of sidings for standage at the ports. All sorts of standards of equipment and maintenance on industrial railways will be exposed to his gaze.

There is much to be said for the large mineral wagon on long journeys, perhaps more so if rising speeds require the fitting of air brakes, but to what extent is the customer who pays entitled to "call the tune"? On intensive local workings the loose-coupled 20-tonner with hand brakes seems to be the most suitable.

Yours faithfully,

H. BELL

159, Stamford Road, Audenshaw, Manchester

Improved Underground Facilities

February 6

SIR,—The potentialities of the Waterloo & City tube have never been fully exploited. By extending it to Liverpool Street it could be used to provide a through connection between Liverpool Street and Waterloo and by boring an escalator connection from the west end of the existing Bank Station to Mansion House (District) a valuable connection from the eastern half of the District Line to Waterloo, so relieving Charing Cross of much of its present congestion caused by District-tube interchange traffic.

Much of the congestion at Liverpool Street is due to bunching all entrances and exits at one end of the platforms. I suggest that a pair of escalators be provided to give direct access from the east end of the Central Line platforms to the east side of Liverpool Street main-line station, as the main-line trains and the fast suburban trains do not stop at Stratford. This will spread the load of each eastbound train in the evening more evenly throughout its length.

Perhaps London Transport could explain why all railway travellers to and from Olympia are still compelled to travel *via* Earls Court, giving visitors from north-west,

north, and north-east London an entirely unnecessarily long and arduous journey, necessitating two changes of trains, and how long it will be before the Olympia to Edgware Road service is restored. The tracks are there and the service to Hammersmith is not good enough for it to be suggested that the line is working to capacity, so let us have this very useful and convenient service restored, even if only on exhibition days.

Yours faithfully,

R. A. PASCALL

12, Fairholme Avenue, Gidea Park

[Northward extension of the Waterloo & City Tube to Liverpool Street would be difficult, if not impossible, because of the levels at the Bank. The proposals of the London Plan Working Party include a line which would serve the same purpose. In any event, interchange at Bank between the Waterloo & City line and the Central Line would be greatly facilitated by the construction of a new direct subway which has been proposed officially in connection with the 1951 Exhibition.—ED. *R.G.*]

London and Manchester Train Services

February 14

SIR,—With regard to the editorial in your January 20 issue, an interesting but perhaps little-known fact, though one worthy of record to the student of train service details, is that for a period during the 1914-18 war the Midland possessed the fastest schedule of any company between London and Manchester.

This record was held from May 1, 1916, to December 31 of that year by the 12.0 noon from Manchester Central which, calling only at Cheadle Heath and Leicester, was allowed 3 hr. 47 min. (its pre-war schedule) compared to the L.N.W.R. best timing of that period, 3 hr. 50 min., by the 12.10 p.m. from London Road.

The Midland train was withdrawn on January 1, 1917, since when there has been no regular booked passenger train, apart from season excursions, in either direction between Derby North Junction, Chaddesden, and Spondon Junction, thus avoiding Derby station.

Yours faithfully,

V. STEWART HARAM

40, Edenfield Gardens, Worcester Park

1948 Locomotive Exchanges

January 11

SIR,—Your correspondent, Mr. S. Ellingworth, in *The Railway Gazette* of January 6 severely criticises the Southern's post-war building of the various classes of Pacifics, on the grounds of unnecessary expense. Surely the only people who are able to state whether this large-scale building programme is justified or not, are the staffs of the operating departments of the Southern Region. It is to be expected that these people, who are in a position to know all the locomotive requirements of that Region, give at all times careful consideration to the number and design of any new locomotives that may be required.

During the war years the shortage of Southern Railway motive power in the West of England was so acute that it was necessary for several trains between Exeter and Plymouth and Exeter and North Devon to be worked by Great Western locomotives. These were over and above the normal exchange workings which, in recent years, have taken place between Exeter and Plymouth so that in emergency, drivers of each railway may know the others' route between the two places. These exchange workings are still continuing, but the Southern Region is now capable of providing all its own motive power and does not have to borrow from its neighbour.

The rate of building of the Pacifics does not appear high when compared with the post-war building of other railways, even when allowance is made for the different route-mileages of each. The L.N.E.R. (and Eastern and North Eastern Regions) has built amongst other new locomotives, well over three hundred Class B1 4-6-0s as well as some 80 Class A1 and A2 Pacifics since the war, and there has never been a suggestion that any of these new locomotives is unnecessary. If the S.R. Pacifics are more costly in the first place than a comparable engine on the other Regions, it must be remembered that British Railways are prepared to pay up to three times the cost of a normal steam locomotive for the benefits of the increased availability afforded by diesel-electric locomotives. It is not therefore unreasonable to expend a larger sum initially than is usual on a steam locomotive, if by virtue of its design it is capable of greater availability than a strictly orthodox locomotive, which appears to be the case with the Southern Pacifics?

The timings of several trains between Exeter and Waterloo are such that time can be kept over the switch-back gradients only by Merchant Navy Pacifics. I am not referring solely to such trains as the heavily-loaded "Devon Belle," as normal winter-time expresses calling at several intermediate stations between Salisbury and Exeter have by no means an easy job to keep time with loads of 11-13 bogies. Time lost from longer stops than are booked (by no means an infrequent occurrence) or from a permanent-way restriction can, with any luck, be made good, but any locomotive other than a Merchant Navy would have considerable difficulty even in maintaining schedule. Mr. Maxwell may consider that such a train is only a semi-fast and as such a Pacific is being wasted on it, but one of the advantages of thermic syphons is in rapid steam raising, and full advantage can be taken of this when the demands for steam are intermittent. The same applies to trains calling at all or most stations west of Exeter where with loads of up to ten bogies, West Country locomotives can keep time over sections booked with a high start-to-stop speed for such a short distance (*i.e.*, four miles in six minutes), and later with the same train, when running non-stop for distances up to 20 miles, show themselves capable of sustained high-speed running.

If only for the convenience of those who rely on travelling by Southern in the area served by the steam lines of that Region, I hope the Pacifics will not be drafted elsewhere.

Yours faithfully,

PETER W. B. SEMMENS

30, Westwood Avenue, Middlesbrough

Travel in England

February 8

SIR,—Referring to Mr. Skelton's letter in your issue of February 3, I agree with him heartily on the attitude adopted by the railway management towards its clients.

On December 21 last the "Master Cutler" left Marylebone at 6.57 p.m. On January 9 the 3.20 p.m. from the same station left 51 min. late. On neither of these occasions could any details be "revealed" by the staff as to the cause of the delay. No use was made of the loud-speakers to inform passengers of the trouble, but subsequently in the former instance it was ascertained that there was "no brake," although the locomotive was at the head of the train at 5.50 p.m. In the latter instance a collector stated quite crossly: "you can't go without an engine."

On January 18 the "Master Cutler" was 23 min. late leaving, due to an accident outside the station. Announcements were made on this occasion to passengers but merely to the tune of "We can't say when we shall be able to move any trains in or out of Marylebone." This statement had the effect of removing many passengers from the Sheffield train, who made a wild dash to St. Pancras for the 6.40 p.m. Whether they succeeded in catching it is not known, but one wonders if anybody on the Marylebone staff had the wit to telephone St. Pancras, ask them to hold the 6.40 p.m., and strengthen it, having regard to the mess Marylebone was in.

Could the B.B.C. be informed in such circumstances and be requested to announce the trouble and offer alternative routes?

Yours faithfully,

V. BOYD-CARPENTER

Highland House, Worksop

THE SCRAP HEAP

Steaks at Cut Price

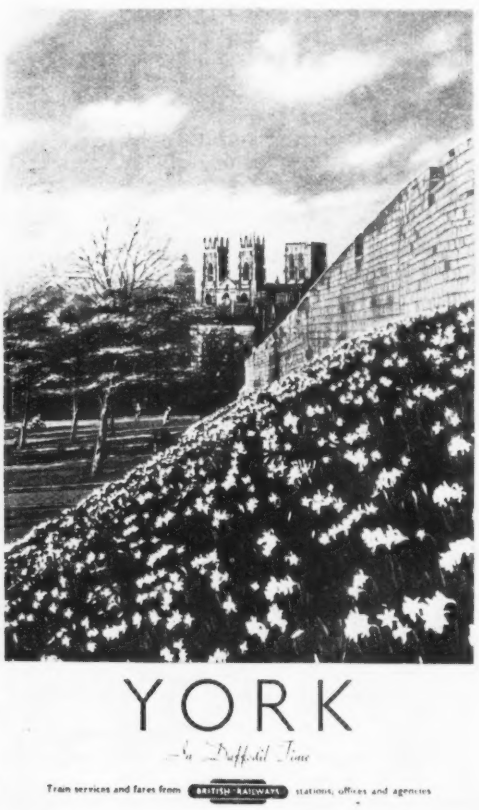
A line that once served a number of 16-oz. steaks at $4 found that they were moving more slowly. The steaks were cut smaller, to about 9 oz., and served at $2.75, which immediately became a popular meal that, considered by itself, showed a greater monetary return at less cost than steaks at the higher price. —*From the "Railway Age."*

York—in Daffodil Time

On February 15, stations on British Railways were showing a new poster: "York—In Daffodil Time." The basis of this poster, most recent addition to the many British railway posters that have featured historic York, was a photograph taken by a *Yorkshire Evening Press* photographer, and coloured by a Newcastle artist, Mr. Arthur Peel.

Taken in early Spring, from a viewpoint outside the walls near the station, it shows a foreground starred with the daffodils, while, in the distance, seen through the trees bursting into leaf, is the Minster.

Copies of the poster are being sent to travel agencies in the U.S.A. and Canada, and when Alderman J. Morrell, Lord Mayor of York, flies to New York in April, maybe he will be greeted by this poster reminding him of home.



York in Springtime is the subject of a new British Railways poster (*see paragraph above*)

Ulster Transport Badge

A badge has been issued by the Ulster Transport Authority to its road and rail employees on traffic operations. The new badge, which is 1⅝ in. dia. shows the Red Hand of Ulster on a white shield, against a background of Brunswick green, with "Ulster Transport" lettered in silver around the circumference. The badge may be worn in the jacket lapel or as a cap-badge, according to the grade of the wearer. Railwaymen in grades such as ticket collector and guard, whose designation is embroidered on their cap band, wear the new badge in their lapel, though signalmen and porters, who formerly wore the letters "U.T.A." on their caps, and also locomotive men, wear the badge in their cap. Bus drivers and conductors replace the original "N.I.R.T.B." badge worn in the lapel, by the new totem badge, which is also worn by some employees in the freight section.

Reproduction of the new Ulster Transport Authority totem badge

Fewer Civil Servants

There was a decrease of 5,851 in the total number of Civil staff employed in Government Departments on January 1 this year compared with the total number on October 1 last. The comparative figures were 330,319 and 336,170.

Staffs engaged in the trade, industry, and transport departmental group fell by a total of 3,160, from 105,807 to 102,647; while social services showed a reduction of 1,789, from 107,212 to 105,423; and Post Office numbers went down by 628 from 248,169 to 247,541.

British Railways Press Inquiries

Last year the press office at Railway Executive headquarters dealt with approximately 4,500 inquiries from newspapers, news agencies, the B.B.C., periodicals, freelance journalists, and authors. In the same period British Railways, through their various press channels, issued between them 650 announcements, ranging from important changes in railway organisation to minor items of staff retirements, presentations, and local functions.—*Mr. D. S. M. Barrie, Public Relations Officer, Railway Executive, in a paper to the East Midlands Section of the Institute of Transport.*

Thanks in Verse

In response to an expression of thanks, in verse, for assistance rendered to a member of the public, received by the Stationmaster, Derby, L.M.R., the station staff at Derby compiled what is described as a "Doggerel of Appreciation."

A Thanksgiving Ode

The female of the species is sillier than the male,
She leaves her things behind her when travelling by rail,
She loses her direction when off the beaten trail,
And statistics
Are as mystic
As Euclid, Greek, or Braille.

As a member of the species, I exemplify this tale;
I tried to find a train alone without the help of male,
I searched down all the columns, and found, too late to wail,
I a timetable
Was unable
To use. I'd lost the trail!

They say
That public servants are rude
They have
No word
Save a gloomy one.

But at Derby, Oh, at Derby!
They're kind and helpful there
To the lost and wandering public,
Treat them tenderly with care.

Doggerel of Appreciation

In this age of stress and care
Compliments are very rare,
And when received in rhyming verse,
We hold that we might well do worse
Than offer to our correspondent
Thanks in kind; but feel despondent
Of attaining to the heights
Demanded by poetic flights.

Remember when you go by train,
Should you have trouble once again,
Ours is the pleasure to unravel
The tangled woes of all who travel.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Suburban Traffic

The total number of passenger journeys made on the Witwatersrand suburban system, excluding Pretoria, during the six months ended September 30, 1949, was 53,383,774, an increase over the corresponding period of the previous year of 2,687,032. First and second class passengers decreased and the increase was confined to third class traffic. The total number of journeys on the Cape Town suburban system in the same period was 39,882,165, an increase of 254,891 over the corresponding period of the previous year. Suburban traffic for the whole of the Union accounted for 113,962,547 railway journeys. For the same six months in 1948, the number was 110,658,123, thus reflecting an increase in 1949 of 3,304,424.

Railway Grievances Commission

The first report of the Railway Grievances Commission has been presented. After studying the report the Government has decided on two steps in connection with railway servants having grievances arising from discrimination on political grounds or by reason of war policy. Servants who are considered to have suffered injustice will have their seniority restored, and will be appointed as soon as possible to posts equal as regards salaries and wages to the positions they would have occupied had there been no discrimination against them. Such appointments will be back-dated to December 1, 1948, which is the date on which all promotions to posts in the salary scale of £780 a year and over were "frozen."

As a result of this decision normal promotion will be restored. In the filling of hitherto "frozen" posts to which persons have been appointed in an acting capacity account will be taken of the claims of servants whose cases have been dealt with by the Commission. The same procedure will be followed for those whose cases are still under consideration by the Commission as soon as the recommendations become available.

Finances

In a published statement Mr. W. Heckroodt, Acting General Manager of Railways, states that the accumulated deficit for the current financial year is a disturbing feature. At the end of September, 1949, the loss on all services amounted to £2,056,367; for September alone the deficit was £577,957. The situation had been under constant review this year. Apart from trying to increase revenue, the railway management had framed an economy campaign on as broad a basis as possible, with the purpose of bringing every office within the scope of the economy drive. The level of revenue earned was higher than in previous years, but costs continued to rise. Besides an annual burden of £18,000,000 in cost of living allowances, working conditions of staff had been improved still further.

Revenue for all services amounted to £7,795,716 in October, 1949, an improvement on the previous month of £36,769, but expenditure was £8,390,869, leaving a deficit of £595,153. The deficit for October, 1948, at £644,115, was £48,962 more than in October, 1949. The total accumulated deficit was £2,651,520 at the end of October last. In that month the railways lost £430,700 and harbours showed a surplus of £78,602. Steamships and airways had deficits of £11,202 and £155,135 respectively and aerodromes made a profit of £4,900. The total net revenue appropriations for the current year amounted to £563,436 to the end of October.

TASMANIA

New Rolling Stock

Thirty-two diesel-electric locomotives are on order from The English Electric Co. Ltd. and the Vulcan Foundry Limited, as well as 18 steam locomotives from Robert Stephenson & Hawthorns Limited. The diesels will be of the double-end type capable of developing 600 h.p. continuously and arranged for multiple-unit working with three locomotives under the control of one driver. An order for six Drewry articulated diesel-mechanical railcars is also nearing completion and the first is already in service. They will have improved seating for long-distance travel and fluorescent electric lighting and pressure ventilation.

New wagons in service and under construction include 200 bogie medium-sided 15-ton wagons, and 75 bogie medium-sided 30-ton capacity wagons, which will be useful for the transport of coal, production of which is expected to increase considerably. Other programmes for new passenger carriages and goods wagons are receiving consideration.

IRELAND

Turf-Burning Locomotives

The Government-sponsored Turf Board (Bord na Mona) has acquired three turf-burning steam engines for use on the 3-ft. gauge railway at the new electricity turf-burning generating station near Clonsast, Offaly, as shown in the accompanying illustration.

These engines, built in Kilmarnock by Andrew Barclay & Co. Ltd. and assembled at Portarlington, have proved most satisfactory in tests. They will replace diesel locomotives on the haulage of turf from the loading centres to the power station, about three miles.

The diesel engines will not be scrapped as the new locomotives are too heavy for the half-mile beyond the loop line at the loading centre; they will be used to draw the loaded wagons to this point, where the steam locomotives will take over and haul them to the power station.

As only one of the three turbines in the new station is in operation at pre-

Turf-burning locomotive used by the Irish Turf Board at Clonsast (see paragraph above)

sent, only one locomotive has been put into service, but when the station is in full production in the next few months, all three will be used. Economically, the engines will be advantageous as their fuel is available in abundance at first cost. They are of the standard timber-burning type but contain a larger firebox for use as turf-burners.

FRANCE

Paris "Metro" Fares

The new *Metro* flat fares for journeys to any station on the system are: (Second class) Single ticket—fr. 20, instead of 15; *Carnet* (five double tickets for ten journeys)—fr. 140, instead of 100; Weekly card (workers)—fr. 105, instead of 75. (First class) Single ticket—fr. 30, instead of 23; *Carnet*—fr. 200, instead of 150.

Before the decision to raise fares was announced, it was evident that both the S.N.C.F. and the Regie Autonome des Transports Parisiens were reluctant to take this step, as they feared a considerable falling-off in passengers. Action by the S.N.C.F. was taken, it was stated, under Government pressure, which, in view of the growing transport deficits, had determined that a further financial effort must be made. When the Regional Office of the Paris Passenger Transport Board first discussed the question of a rise in fares the vote was eleven for and eleven against the rise. M. Pineau, Minister of Public Works & Transport, insisted that the matter must be discussed a second time, and the second vote was twelve for and nine against the increase.

Labour Unrest

Labour agitation is causing some unrest, especially among transport workers. In addition to making wage claims and a demand for payment of a bonus of fr. 3,000 to all workers, railwaymen and dockers are urged to stop the transport of American war material and the dispatch of reinforcements to the French Army in Indo China.

Sabotage such as the unbolting of rails, and local surprise strikes, in which trains are held up for periods of half an hour or so has been reported. These strikes have frequently stopped the Paris Metro and buses. On the Metro trains have stopped in a station for half-an-hour between 7 and 9 a.m. The entrances to platforms have been closed and passengers thus held up unable to get to Paris in time for work. On January 24, eight lines were brought to a standstill, and passengers forced to wait or walk for miles to get to work. Similar surprise strikes the same morning held up twelve lines of buses at the termini in the outer suburbs, compelling would-be passengers to set out on foot for Paris.

JUGOSLAVIA

New Lines in Istria

A standard-gauge link has been begun to connect the main line between Rijeka (formerly Fiume) and Sentpeter na Krasu (the junction with the main Ljubljana-Trieste line) and the standard-gauge line now under construction between Lupoglav (on the line running through central Istria) and Stalije on the eastern coast of the Istrian peninsula. It will branch from the Rijeka-Sentpeter na Krasu line at Opatija-Matulji, 8¼ miles west of Rijeka, and join the Stalije line at Kozljak, 7½ miles north of Labin, and will be about 14 miles long. The principal work will be the tunnel under the Ucka Mountain, the highest mountain (4,579 ft.) in Istria.

This tunnel, with a length of about 11,480 ft. will be one of the longest in the country, and Kozljak will be close to its southern end. The line will facilitate the conveyance of the hard-coal mined in the Stalije-Labin-Rasa area. The Lupoglav-Kozljak-Stalije line was begun in 1948 and is to be completed by November this year. This line, 33 miles long, leaves the Divaca-Pula line at Lupoglav, 31 miles south of Divaca, on the Ljubliana-Trieste main line. Lupoglav is at the easternmost bend of the Divaca-Pula line. Stalije is on the eastern shore of the fjord-like indent on the eastern coast of Istria, which is the mouth of the River Rasa. Before the war the Italians, who mined their best coal in the Rasa, built an electric railway from the principal mines near Labin to Stalije, for conveying coal to the coal-washing plants at Stalije, whence it was mechanically loaded into vessels.

The latter line may be incorporated into the Lupoglav-Stalije line, the main structure of which will be a three-tier viaduct, the top of which is to carry the railway, and the tier underneath, a motor road. The lowest tier has been reserved for an aqueduct. Including tunnels, bridges, and viaducts there will be 157 large-size structures on the line, the construction of which has required excavation of 36,000,000 cu. ft. of earth.

U.S.S.R.

Propaganda Trains

Coinciding with the approaching elections for the Supreme Soviet, special trains styled "Agitpoyezd" (agitation train) are operating in various regions, including Estonia. The train stops at lineside stations, and lecturers and propagandists on the train deliver speeches, addressing the local inhabitants who have been instructed to gather at the station yard. The train includes a cinema car. Other propaganda trains are called "club trains." Five of them are reported to be operating in western Siberia in the district between Tomsk and the Kuznetzk coal-mining region.

Publications Received

British Railways Holiday Guides, 1950.—The first five of a new series of illustrated holiday guides have been issued by British Railways, and may be obtained from station bookstalls, booksellers, and railway enquiry offices, price 1s. each. The guides, editorial reference to which is made elsewhere in this issue, are as follow: area No. 1, Scotland; area No 2, Wales, North West England, and the Isle of Man; area No. 3, Eastern England; area No. 4, South West England; area No. 5, South and South East England and the Channel Islands.

The Light Railways of Eire, I.O.M., and Channel Islands. By R. W. Kidner. Second Edition. (Light Railway Handbooks No. 6.) South Godstone, Surrey: The Oakwood Press, Tanglewood. 7¼ in. × 4¾ in. 16 pp. Illustrated. Paper covers. Price 2s.—This booklet gives details of 16 light railways in Eire, the Isle of Man, and the Channel Islands. The information is set out conveniently for quick reference, and a series of sketch maps is reproduced with the text. When the first edition appeared, in 1938, the railways of the Channel Islands, and several of the light railways in Eire, had been closed, and nearly all the remaining Irish light railways have since ceased to carry passengers. The present work, therefore, serves to recall several past examples of this phase of railway development.

Western Germany.—The British Engineers' Association has published a booklet on industry in Western Germany which should be of value to United Kingdom manufacturers. The publication has been produced after a study-tour by Mr. A. W. Berry, Director, British Engineers' Association, and Mr. C. F. I. Ramsden, Overseas Director, Federation of British Industries, which was undertaken after the inauguration of a West German Government at Bonn. As well as reviewing the capacity of Western Germany to achieve a strongly competitive position in world markets it has been possible to study some of the problems faced by German manufacturers today. Copies may be obtained from the British Engineers' Association, 32, Victoria Street, S.W.1, price 2s. each.

Pakistan Railways.—An illustrated booklet issued by the Railway Division of the Government of Pakistan, Karachi, briefly describes progress during the two years since Partition. Subjects mentioned include construction by the Persian Government of a line to link up with the North Western Railway at Zahidan; the N.W.R. carriage-building programme; the adaptation of Saidpur shops on the Eastern Bengal Railway to broad as well as metre-gauge work, due to the transfer of Kanchrapara to the East Indian Railway; and the locomotive coal problem, with dieselisation as a remedy.

Railway Passenger Fares

Do cheap tickets produce additional net revenue?

By J. H. Laundy
Formerly Audit Accountant, Southern Railway

FOR many years the question as to whether "cheap" tickets—especially those available by ordinary trains—produce additional net revenue, is one on which there have been sharply divided opinions. One school of thought contends that, provided a really substantial reduction is made from the ordinary fare, a sufficient number of additional passengers will be attracted to rail to increase gross receipts, whilst another maintains that the loss sustained by reducing the charge to those who would otherwise have paid the ordinary fare can never be made up by the additional receipts from new traffic. Unfortunately, neither theory can be proved, as, when "cheap" fares are introduced, it is never possible to know what the receipts would have been had no such change been made.

In this article, an attempt has been made to review the matter impartially, having regard to the results achieved in the first nine months of 1949, particularly in the five "holiday" months, May-September, immediately after the very large extension of cheap ticket facilities, which operated from the middle of April, 1949.

Pre-War Practice

Immediately before the war, third-class monthly return tickets at single fare plus a third (1·05d. per mile) were issued between any two stations, with a minimum charge of 2s. 6d. (5s. on the Southern), and this fare, although technically an "exceptional" fare, became for all practical purposes the ordinary return fare. For shorter distances, day return tickets at single fare for double journey (·78d. per mile) available by ordinary trains were issued between a very large number of pairs of points, though not universally, and at this rate the railways were able to compete fairly successfully with road transport for short-distance return traffic. In addition, there was a large programme of cheap return tickets at even less than the single fare, for evening excursions, etc., as well as of guaranteed day and half-day excursions by special trains, sponsored by promoters such as Thos. Cook & Son, Restalls, and the National Sunday League.

Traffic Retained

There is little doubt that the cheap day rate of ·78d. per mile enabled the railways to retain a considerable volume of short-distance traffic which would otherwise have been lost to road transport, whilst the very cheap guaranteed excursions were probably a paying proposition, although they were undoubtedly used to a considerable extent for single journeys in both directions by persons who should have paid the ordinary single fare, and were also subject to abuse by the irregular transfer of the return halves.

War and Post-war Arrangements

During the war, the whole of the cheap ticket facilities were suspended, but the minimum charge for monthly return tickets was cancelled, so that for a time return tickets at 1·05d. per mile could be obtained for all journeys, irrespective of distance. Successive increases in the general level of fares in 1940, 1946, and 1947, however, brought the rate up to 1·63d. per mile, and as road transport fares remained at the pre-war levels, with minor exceptions, the railways were no longer able to hold their own with the road for short-distance traffic, particularly having regard to the greater convenience of road transport for this class of traffic. As a result, a very large volume of short-distance traffic, amounting to possibly 200 million journeys a year, was lost by rail to road during and after the war period.

It was against this background that the railways had to decide whether cheap tickets should be re-introduced, and if so, to what extent, bearing in mind that for short distance journeys the bulk of the monthly return tickets were used as day returns and that consequently if cheap day tickets at single fare for the double journey were introduced, it would be necessary to increase the carryings between the points affected by 33⅓ per cent., even to maintain existing revenue.

Changes in Receipts

A commencement was made on a very limited scale in 1947, and although the early results were far from encouraging, extensions were gradually made, so that the receipts from this class of traffic rose from a little over £100,000 a month at the end of 1947 to about £500,000 a month at the end of 1948, with a peak of nearly £1,000,000 in August, 1948; there was, however, a greater fall in the receipts from monthly return tickets.

Commencing in April, 1949, a large extension of cheap day tickets, day excursions, evening excursions, etc., was made, the tickets being available sometimes by any ordinary train, sometimes by specified ordinary trains and sometimes by special trains. The fares charged were generally single fare for the double journey for the cheap day tickets available every day; about ⅔ the single fare for the double journey for day excursions on certain days, and about or a little above half single fare for the double journey for evening excursions by specified ordinary trains. Other charges were made in certain cases and at one station recently, posters adjacent to one another were noticed advertising four differing fares for return excursions to a station about 20 miles distant, to which the single fare was 4s. 2d. and the monthly return 5s. 7d., namely:—

	s.	d.
Day cheap every day available by all ordinary trains (alighting at station short of station booked to)	4	6
Day cheap in connection with football matches available by all ordinary trains	4	2
Day cheap every day available by all trains after 9.30 a.m.	3	6
Evening excursions by specified ordinary train between 4 p.m. and 5 p.m. every week-day ...	2	3

(The bus fares between the same points are 2s. single, 3s. 3d. return, available by all buses.)

So far as the writer is aware, promoters' guaranteed excursions by special train have not yet been re-introduced generally.

As a result of these extensions of the cheap ticket facilities the receipts from excursion, etc., traffic rose sharply to a peak of £1,611,000 in August, 1949, an increase of £664,000 over 1948, but as in every previous month, the fall in monthly return receipts was greater—£824,000 in August, 1949.

Effect on Carryings and Receipts

What then has been the net result in 1949 of re-introducing pre-war cheap facilities on this generous scale?

The categories of passenger traffic principally affected by the re-introduction are: (*a*) "ordinary," many of the cheap return fares being less than the ordinary *single* fare, (*b*) "monthly return," the category principally affected; and (*c*) "other descriptions" in which are included bulk travel, party traffic, and H.M. Forces and their families paying their own fares, all at charges in excess of some of the new excursion fares. In view, however, of the very heavy fall in Government passenger traffic (also included in "other descriptions") due in no way to the extension of cheap tickets, to which reference was made in evidence before the Charges Consultative Committee recently, it would not be correct to include "other descriptions" when weighing up the results and this survey, therefore, embraces "ordinary," "monthly return" and "excursion, etc." only.

The recent publication in *Transport Statistics*, issued by the British Transport Commission, of the results for September, 1949, the last month of the holiday season, renders it possible to arrive at the figures for the first nine

months of the year and for the holiday months, May to September; they are as follow:—

(A) Passenger-Journeys:	Ordinary 000's	Monthly return 000's	Excursion, etc. 000's	Total 000's
Jan.-Sept., 1949 ...	46,404	155,998	131,460	333,862
,, 1948 ...	52,609	201,046	58,782	312,437
Inc. + or Dec. − ...	−6,205	−45,048	72,678	21,425
Per cent.	11·8	22·4	123·6	6·8
May-Sept., 1949 ...	27,077	93,734	92,315	213,126
,, 1948 ...	30,664	115,752	47,029	193,445
Inc. + or Dec. − ...	−3,587	−22,018	45,286	+ 19,681
Per cent.	11·7	19·0	96·3	+10·2
(B) Receipts:	£000's	£000's	£000's	£000's
Jan.-Sept., 1949 ...	11,661	44,288	9,132	65,081
,, 1948 ...	12,796	51,454	4,247	68,497
In. + or Dec. − ...	−1,135	−7,166	+4,885	−3,416
Per cent.	8·9	13·9	115·0	−5·0

	Ordinary	Monthly return	Excursion	Total
May-Sept., 1949 ...	7,933	30,795	6,478	45,206
,, 1948 ...	8,545	35,097	3,392	47,034
Inc. + or Dec. ...	−612	−4,302	3,086	−1,828
Per cent.	7·1	12·3	90·0	−3·9

It will be observed that in the period January-September, 1949, compared with the previous year, about 21½ million additional passengers (6·8 per cent.) were conveyed for a *decrease* in receipts of nearly £3½ millions (5 per cent.), whilst in the five holiday months, the increase in passengers was over 19½ millions (10·2 per cent.) for a *decrease* in receipts of over £1¼ millions (3·9 per cent.).

Increased Expenditure Incurred

On the other side of the picture, there was an *increase* of some 13 million coaching train miles in the nine months, whilst the cost of publicity for the cheap ticket facilities—posters and advertisements in the national and local press—must have been considerable.

The above results can hardly be regarded with great enthusiasm by even the most fervent advocate of cheap tickets, especially when it is remembered that 1949 was the finest summer within living memory, which should have given a great impetus to travel, whilst 1948 was a very poor summer from a weather point of view; had the positions been reversed, it is probable the results would have been even more unsatisfactory.

Other Causes of Traffic Decrease

The picture is not, however, quite so black as painted in the foregoing, as 1948, being Leap Year, contained an extra day in February, which would account for a loss of perhaps £150,000 in 1949 for the traffic under notice; then there were the lodging turn token strikes on a number of Sundays in 1949, on the Eastern and North Eastern Regions, which undoubtedly caused a considerable loss of receipts, possibly of a somewhat similar amount. The trend of the traffic under notice should also be borne in mind; this had been in a downward direction ever since the last increase in fares in October, 1947. For the last three months of 1948, compared with 1947, the decline was at the rate of only about 1½ per cent., but in the first four months of 1949, for some unknown reason, the rate of fall increased to nearly 7 per cent. If, therefore, the results for the first nine months of 1949 are measured against those of the last three months of 1948, we get a deterioration of the position by some 3½ per cent., or nearly £2½ millions, but if comparison be made between the results of the five summer months of 1949 and the four preceding months, there is an apparent improvement of about 3 per cent., or nearly £1½ millions.

Whichever view is accepted—and something between the two may be correct—it will probably be fairly generally agreed (with, of course, certain exceptions) that the extension of cheap ticket facilities in 1949 has not increased railway net revenue to any appreciable extent, if at all, and that no great improvement in the position can be looked for from this source. This also appears to be the view of the Commission, Mr. Heald being reported as informing the Charges Consultative Committee recently that "Cheap fares merely helped to the extent that trains were kept occupied; they could not improve revenue."

In conclusion, the writer, after careful study of the 1949 results, feels that they only go to confirm the view expressed in the penultimate paragraph of his article published in *The Railway Gazette* for January 28, 1949, namely, that it is unlikely that any scheme "involving reduction of fares, whether by reduction of the standard or by introducing additional cheap facilities would attract sufficient additional passengers to rail even to maintain existing (1948) passenger receipts."

The question as to whether, from a revenue earning point of view, it is preferable to have one level of fares (single and return) only for ordinary trains, reasonably comparable with road transport fares, at least for short journeys, or a high ordinary fare, paid only by a small minority of passengers, together with a confused jumble of cheap return fares varying according to the conditions of availability, is one on which opinions will no doubt continue to differ; and we shall have to wait until the Commission produces its new charges schemes before we can know the official view of the matter or any solution propounded.

CROSS-CHANNEL MOTORCAR SERVICES.—The Southern Region is to provide two new services for motorists travelling abroad between July and the end of September. The more important of these will be a mid-day service exclusively for motorists in each direction between Dover and Dunkirk; the other new service is between Southampton and Cherbourg, which will be worked by s.s. *Duke of York*, with a carrying capacity of 30 cars. Two of the Dover-Dunkirk ferry vessels, *Hampton Ferry* and *Shepperton Ferry*, are to be fitted with additional flooring on the train deck, to carry nearly 100 cars at a time; owners will be able to drive their cars direct on to these vessels. A new car examination shed is being built near the train-ferry dock at Dover to house H.M. Customs & Immigration, R.A.C. and A.A. authorities. On the Southern Region Short Sea routes this summer there will be five special boats in service for cars, as well as ordinary passenger ships on the Dover-Calais and Southampton-Havre routes. On the Newhaven-Dieppe service the cargo vessels *Rennes* and *Nantes* will also convey cars, but on this route the owners will travel by the ordinary mail service between the two ports, thereby saving an hour at sea. On the Folkestone-Flushing route cars can be taken by the Zeeland Steamship Company vessel s.s. *Mecklenburg*. The total daily car carrying capacity by all ships on the nine Cross-Channel routes during the summer months will be over 500 cars a day in each direction.

REAY GEARWORKS LIMITED NEW LONDON OFFICE.—The address of Reay Gearworks Limited, Lamport Street, Hebburn-on-Tyne, new London office is 44-45, Tower Hill, London, E.C.3; telephone number Royal 1461.

GERMAN RAILWAYS WORKS PROGRAMME.—According to a Reuter message the West German Communications Minister has announced that West German railways will immediately begin a DM. 250 million works programme designed to employ directly and indirectly about 105,000 workers.

BRITISH INDUSTRIES FAIR.—Organisers of the British Industries Fair, 1950, to be held in London and Birmingham from May 8-19, have begun distributing a record number of advance B.I.F. catalogues to more than 100 territories. The catalogues are indexed in 10 languages and altogether 25,000 copies have left Britain. Smaller consignments for Australia, New Zealand, Far East, South America, U.S.A., and Canada have been sent by air. Some 5,000 copies of the catalogues were dispatched to the U.S.A. and Canada to meet demands by North American buyers which this year is noticeably greater than last year. The final editions of the London and Birmingham catalogues will be published on the opening day.

VICKERS LIMITED PREFERENCE STOCK.—The interim dividend on Vickers Limited cumulative preference stock for 1949 was paid in accordance with the High Court ruling in the case of Godfrey Phillips Limited versus the Investment Trust Corporation Limited. The Court of Appeal, on February 15, ruled that the correct method of calculating the dividend was that followed by Vickers Limited before the High Court ruling, with the result that the interim dividend was £1 19s. 3½d., or underpaid by 3s. 2½d. per £100 stock. It was decided at a meeting of the board of Vickers Limited on February 16 to pay a supplementary dividend on March 31 on the cumulative preference stock, resulting in an additional payment, after deduction of tax, according to the original formula, of 3s. 2½d. Final dividends also were declared of 2½ per cent. actual, less tax, on both the preferred 5 per cent. and 5 per cent. preference stocks.

Wheel Slip Indicators and Relays

The causes and detection of slipping in electric locomotives

By J. E. Bowler, A.M.I.E.E., A.M.I.Mech.E.*

THE locomotive designer aims at an equal distribution of weight over all driving axles of his locomotives because, amongst other benefits, he is enabled to work up to the same tractive effort from each pair of driving wheels.

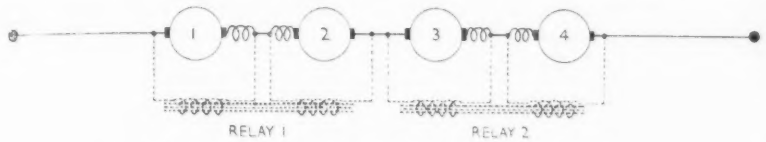


Fig. 1—Arrangement of coils with motors in series

Failure to obtain equal weight distribution, for whatever reason, may allow one pair of wheels to reach its adhesive limit before the others, and slip will then take place on the lightest loaded axle. Once slip has started, the tractive effort to maintain it will usually be much lower than the threshold value at which it was initiated.

This has important consequences in electric locomotives when two or more motors are across the line in series, as the motor connected to the slipping axle will develop a greater back e.m.f. and take an increased share of the total line voltage. Other non-slipping motors connected in series with it will receive less than their share of the total voltage, and their output will be reduced. In all cases of slipping wheels there is a substantial loss of tractive effort at the slipping axle, and where one or more other motors are in series with the slipping one, they too will suffer some loss of tractive effort. Taken to its limiting case the slipping motor may reach such a speed and develop so high a back e.m.f. that almost the whole line voltage may be developed across it, and practically none across the other motors associated with it in series connection.

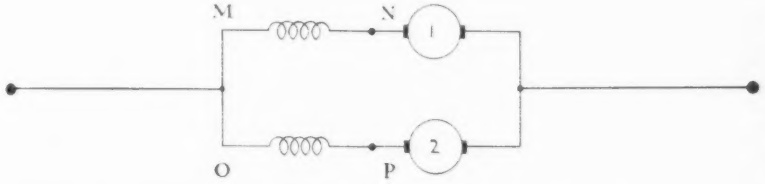


Fig. 3—Points of coil connection with motors in parellel

Torque and Drawbar Reaction

One main cause of wheel slip in electric and diesel-electric locomotives is torque and drawbar reaction giving rise to weight transfer. This phenomenon, applied to bogie locomotives, was discussed in an article* in *The Railway Gazette*; clearly it can lower materially the threshold tractive effort at which slipping is initiated on the leading axle of a bogie. The slipping motor will cause reduced output from other axles associated with it in series connection, or, especially in the case of diesel-electric locomotives in which the generator output is maintained constant for any given controller position, the reduction in total load caused by one motor slipping may increase the power fed to the other motors and start them slipping too.

Where an axle in a large locomotive or multiple-unit arrangement is slipping it is often some time before it is detected by the driver. A number of devices are available for detection of slip and for warning the driver; some depend on the existence, during slip, of an asymmetric current and/or voltage distribution between the motors. The diagrams indicate some of the motor arrangements which are employed and the manner in which connection is made to a relay or indicator.

In series connection (Fig. 1) the voltages across the motors are equal within a small limit, and can be applied to coils connected in opposing pairs to cancel out, either as energising coils of a relay or while operating some kind of visual indicator. If motor No. 1 begins to slip the voltage across it will rise relative to the others and the coil to which it is connected will predominate over the opposing coil and operate the relay or indicator.

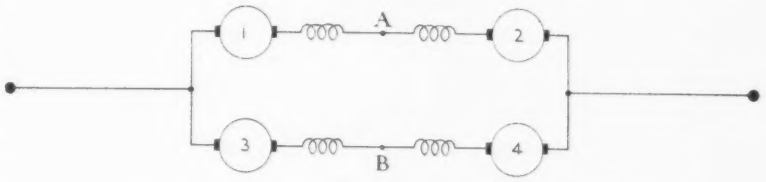


Fig. 2—Coils arranged with motors in series-parallel

In series-parallel connection coils may be connected either across the individual motors or between A and B which are under non-slipping conditions equipotential points (Fig. 2).

Where two motors only are arranged for series-parallel connection, the detection of slip in series connection is by use of voltage coils, but in parallel connection, as they may be each directly across the line, their terminal voltages

(Continued on page 218)

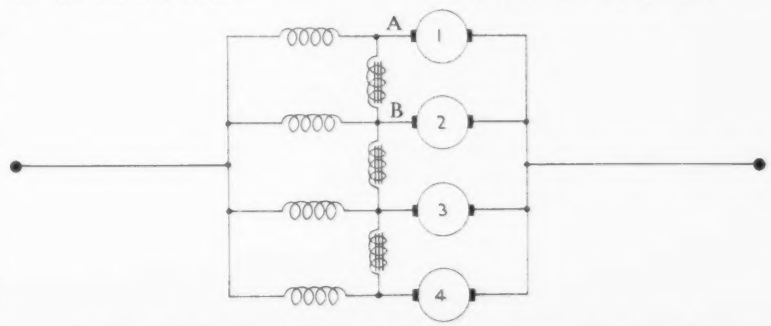


Fig. 4—Relay coils connected with motors in permanent parallel

* Traction Department, the General Electric Co. Ltd.

* Torque and Drawbar Reaction. By E. H. Crott. *The Railway Gazette, Electric Railway Traction Supplement*, April 28, 1939.

A New System of Single-Phase Operation

The "multiplex" system, using a high-voltage busline over the car roofs, is being developed in Sweden

IN a paper read at the Stockholm Congress of the International Union of Public Transport, reproduced in a recent issue of *Teknisk Tidskrift*, Mr. Olov Akerman refers to the so-called "multiplex" system of train operation which is being developed in Sweden. The growing demand for fast and frequent suburban services along the main lines radiating from Stockholm, Gothenburg, and Malmö, which are electrified on the 15,000-V. single-phase a.c. overhead system, has led the Swedish State Railways to re-examine the problem of providing suitable rolling stock.

It is obvious that the high rate of acceleration required for services with frequent stops can best be achieved by trains of the multi-unit type where a great number of axles are motored. With high-tension a.c., however, the equipment of many cars with the necessary high-voltage apparatus would not only call for a comparatively large capital investment but would also tend to multiply sources of failure.

Swedish railway engineers are, therefore, contemplating the use of the multiplex system in which a single-pole high-voltage busline equipped with electric contact couplings is carried on the car roofs over the whole length of the train and connected to the motors over permanently coupled transformers. The line is fed, through a high-voltage regulating transformer of normal type, at one of the cars which is also equipped with pantographs and main circuit breakers. This transformer need only be equipped with the potentiometer windings, as the secondary windings are connected to the multiplex line and distributed throughout the train.

As the main transformer thus represents only a fraction of the equipment otherwise needed for an electric locomotive, the car carrying this equipment can still be used mainly for the accommodation of passengers or luggage. Even with a regulating equipment for 4,000-5,000 h.p. the axle loading of this car need not exceed 14 *tonnes*.

A control car of this type assumes the function of an electric locomotive, with this difference, that the other motor cars coupled to it automatically take over their share of the motive power without being provided with pantographs or regulating equipment.

If a second control car is used, it is possible to split the train into two portions, and a stand-by control set is available. If the maximum voltage in the multiplex line is equal to the voltage in the overhead line, the current in the multiplex line will be smaller than that in the overhead line so that the electric contact couplings will be easier to construct.

The introduction of the multiplex system will have a considerable influence on the d.c. versus a.c. question. The single-phase a.c. high-voltage system will thereby become equally suitable for operation with electric locomotives and multiple-unit trains so that both traction methods can be used to the best of their respective advantages.

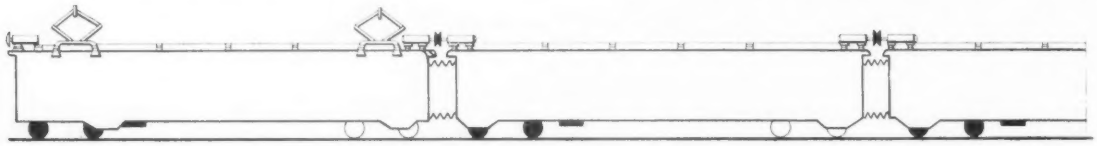


Diagram showing layout of high-voltage current supply in multiple-unit train arranged on "multiplex" system

Wheel Slip Indicators and Relays

(*Concluded from page* 217)

will be identical and the percentage voltage change across their respective armatures (due to current differences) may be insufficient to operate a relay. The percentage voltage difference between series field MN and series field OP (Fig. 3) will, however, be considerable, as the series field ohmic resistances will be practically identical and the ratio of current taken between slipping and non-slipping motor will be about 4 to 1, or more.

With a number of motors in permanent parallel the detection of slip may be simply carried out by relay coils connected, as in Fig. 4. In this case, unless slip occurs the relays are connected between equi-potential points in the motor circuit and no current flows in the relay coils. The occurrence of slip on, say, motor No. 1 increases the voltage across its armature relative to armature No. 2, and current flows between point A and point B, operating the relay.

All these relays suffer from two disadvantages: They cannot detect incipient slip; and they cannot be made extremely sensitive, as they all depend upon symmetry of current and voltage relationships which, even with identical motors, is in practice only a close approximation to exact symmetry, and can be thrown out considerably by factors such as differing amounts of tyre wear.

The relays within the limits of sensitivity mentioned above are usable either to operate contactors reducing the tractive effort on the slipping motor, or to operate buzzers or lights warning the driver. Unfortunately the practicable degree of sensitivity, limited, as explained above by disparities in motor characteristics, wheel diameter, etc., is insufficient to detect slip at its onset. In many cases slip probably will have been noticed by the driver simultaneously with the operation of the relay.

Field Weakening Switch

As an alternative to the use of a relay, a few locomotives have been built with a field weakening switch under the driver's control. Operation of this switch, when the driver has reason to anticipate the occurrence of slip, causes a reduction in the tractive effort developed by the motor(s) most likely to slip due to weight transfer. While the switch remains closed a red light shows in the cab as a reminder to the driver. This system is mentioned in *The Railway Gazette** as being employed in the L.N.E.R. 1,500-V. Bo-Bo locomotives for the Manchester to Sheffield line.

Pending the introduction of a device to detect incipient slip, relays and indicators are only a small improvement on careful driving and a keen lookout by the driver, who can check slip by notching back and thereafter control the locomotive with such an acute sense of the point of which slip occurs under prevailing conditions as to eliminate entirely further slipping unless such conditions change. In tunnel, however, experience shows that a driver may easily fail to observe even 100 per cent. slip, and his train may travel backwards while he remains entirely unaware.

The use of two small generators of identical type, one driven by a driving axle and the other (with due allowance for difference in wheel diameter) by a non-driving axle, can provide a satisfactory slip indicator for steam locomotives.

* *The Railway Gazette, Electric Railway Traction Supplement*, March 7, 1941

Preparing for a 50-Cycle Traction Experiment

Power supply arrangements and overhead line erection on a branch with important tourist traffic in the French Alps

WORK is well in hand on electrifying the section of the French National Railways that will be the scene of the first trials in France of traction with a 50-cycle single-phase supply. This is the 48½-mile branch from Aix-les-Bains to Annecy and La Roche-sur-Foron (see our June 17, 1949, issue), and the reasons for its choice have been given recently in our French contemporary, *Notre Métier*, in the course of a description of the conversion.

The line is steeply graded, with banks of 1 in 50, so that the maximum-effort performance of the locomotives will be thoroughly tested, together with their starting abilities on adverse gradients and the efficiency of the electric braking system. Connection is made with the Culoz-Modane line, electrified at 1,500 V. d.c., at Aix-les-Bains, where it will be possible to study and compare the systems adopted in the prototype locomotives for working on either form of supply. The branch is a single line throughout and tunnels are not numerous, so that the cost of conversion can be kept reasonably low.

During the trial period power will be supplied from a single substation, situated at Annecy, where the input from a 45,000-V. Electricité de France feeder will be transformed down to 20,000 V. The simplicity of the equipment is emphasised by the fact that the internal area of the building will be only 6 ft. 7 in. × 9 ft. 10 in. Eventually, when all traffic on the branch is electrically worked, it is proposed to supply the overhead line from a substation at each end, namely, at Aix-les-Bains and La Roche.

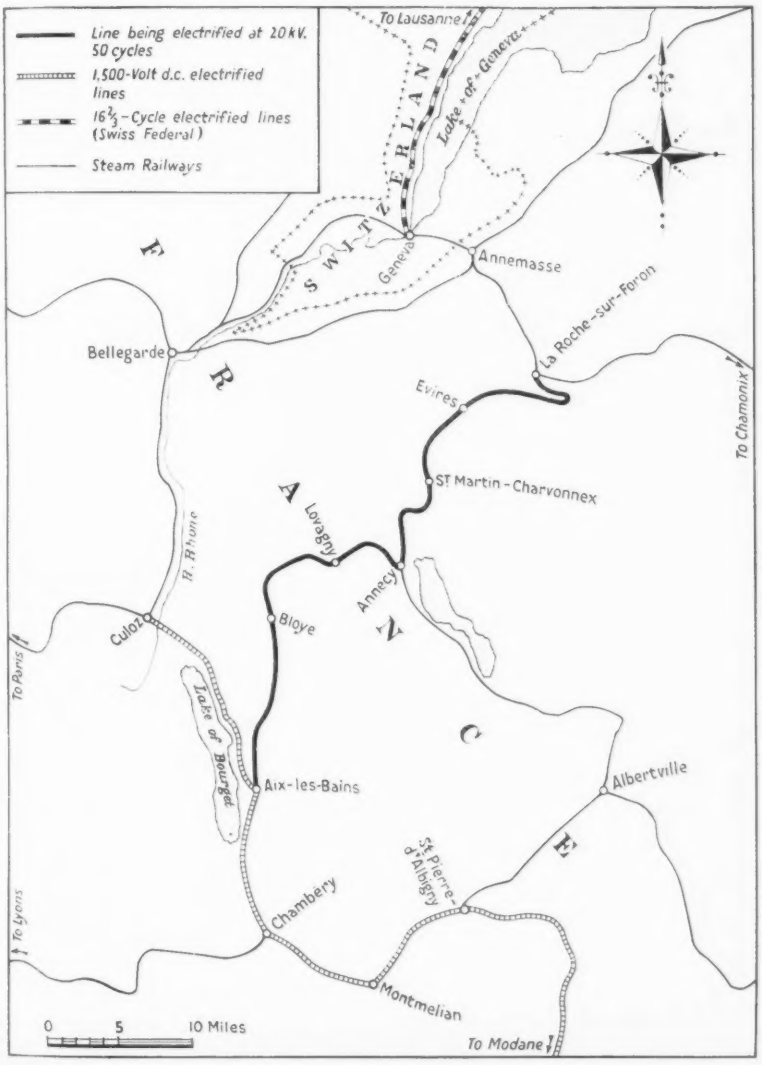
The temporary equipment at Annecy will comprise two Scott type 45,000/20,000 V. three-phase to two-phase transformers, connected so that one output phase feeds the line to the north and the other to the south of the substation. Either transformer will be capable of supplying the whole of the branch by itself in case of breakdown of the other, although at reduced output. A copper feeder of 0·23 sq. in. section will run the length of the line.

A light and economical form of construction is being adopted for the overhead line. The supporting cable will be of 65 per cent. conductivity bronze with a cross-section of 0·1 sq. in. Copper droppers, 0·2 in. dia., at intervals of 29 ft. 6 in., will carry the grooved copper contact wire, having a cross-section of 0·17 sq. in. Automatic tensioning devices will be provided approximately every three-quarters of a mile.

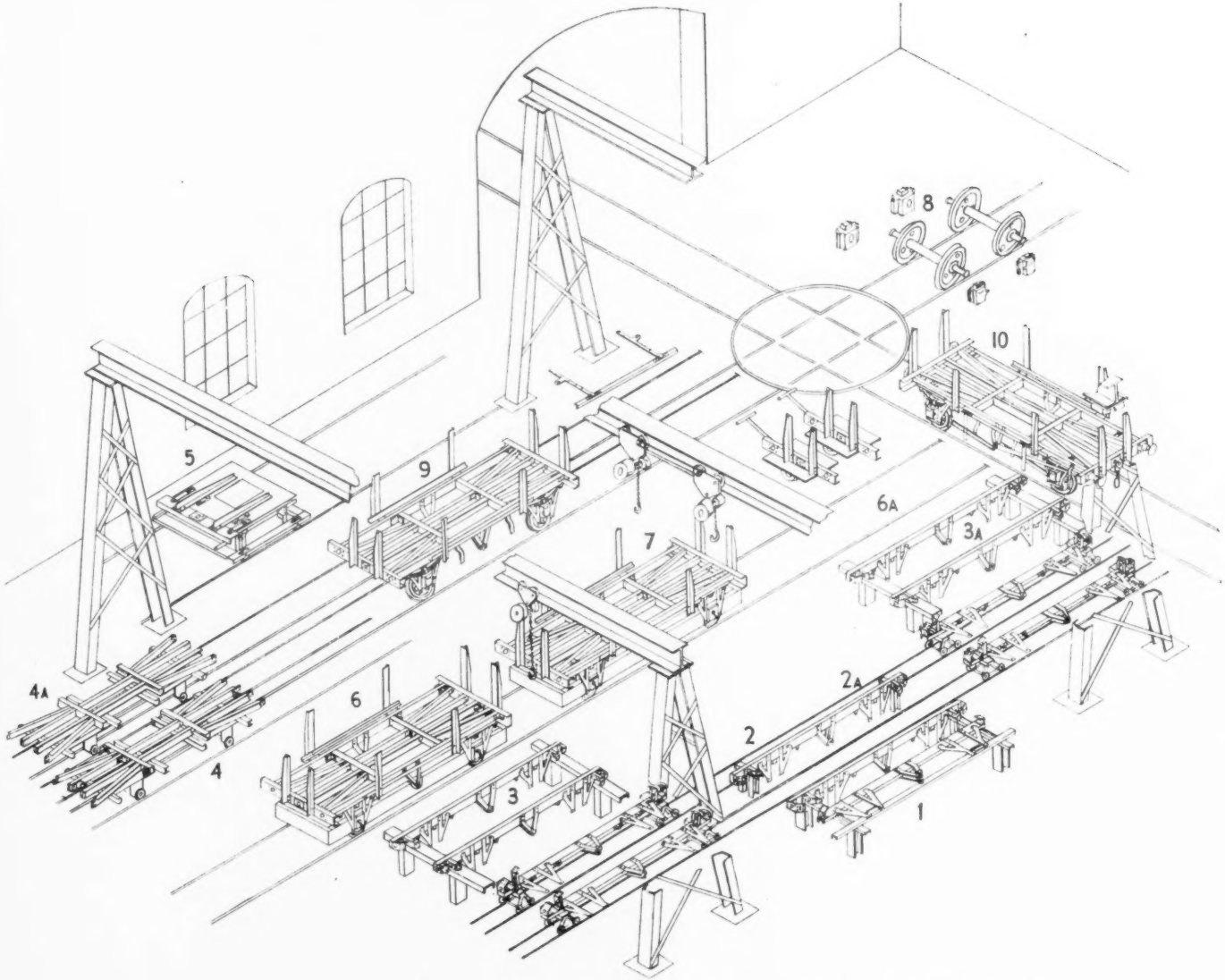
Two types of steel supports will be used for the overhead line, the shorter ones having upwards inclined brackets and the longer type horizontal brackets. On some sections of the line the catenary will be stayed against swaying, while elsewhere the stays will be omitted, the suspension points for the contact line on curves being above the centre line of the track, while on straight sections they will be alternately to right and left.

The supports are being set in concrete bases with a diameter of only 1 ft. 9 in. to 1 ft. 11 in. for a depth of 6 ft. 7 in. A mechanical boring method is being used for digging the foundations, consisting of a power-driven vertical shaft with two rotating knives forming the boring head. By this means a foundation can be dug in an average of 5 min., which includes the time taken in shifting the apparatus on the construction train from one site to the next.

The overhead line supports are lowered into the foundations by crane, and are given temporary packing until they are permanently sealed in position by concrete poured from a specially equipped train. Another aspect of the work at present in progress is the burying of former overhead telephone cables to protect them from inductive effects due to the 50-cycle supply; and the provision of concrete trunking to accommodate the cables on overbridges. Tunnel roofs are being rendered watertight to protect the contact line, and in some cases are either being raised or the rail level lowered. Only minor work is necessary at stations, and simple stabling facilities at La Roche, Annecy, and Aix-les-Bains.



Railways in Savoy, showing sections electrified and being electrified



1. Mounting details on longitudinals
2 (2A). Riveting details on longitudinals
3 (3A). Completion of riveting of longitudinals
4 (4A). Assembling centre section of underframe
5. Headstocks and end supports assembled for movement to 6
6 (6A). Assembling frame
7. Riveting of complete assembly
8. Wheels with axleboxes for movement to 9
9. Underframe lifted on to wheels
10. Fitting of buffing gear, draw bar, and brakegear

Sequence of operations in underframe shop at Ashford Works

Wagon Shops at Ashford Works, Southern Region—I

Progressive system of construction of wagons involving the use of modern methods and devices

THE wagon shops at Ashford Works, Southern Region, are engaged mainly on the construction of new wagons for the Region and for other Regions with insufficient capacity to meet demands for new stock, and on the repair of Southern Region standard wagons and wagons of the former S.E.C.R. and L.B.S.C.R. An article on the construction at Ashford of 1,500 all-steel wagons for the former L.N.E.R. appeared in our May 30, 1947, issue. The shops cover some 20 acres, and between 600 and 700 men are employed.

The construction of new open goods wagons is carried out at the rate of 65 wagons a week. Raw material for the underframe is handled by fork lift trucks in the yard adjoining the underframe shop, thereby economising in space and labour and enabling a load of up to two tons to be brought into the shop at short notice. The underframe shop is about 250 ft. by 250 ft. in size and houses the majority of the machines for processing the underframe members and the assembly area, where erection of the underframe takes place.

Assembly is carried out in the course of a number of progressive operations, as shown on page 220. It will be seen that at (1) details are mounted on the solebars, which are then moved forward on anti-frictional stands to (2) for riveting. Alternate pairs of solebars are then moved on trolleys running on narrow gauge track to (3) or (3a), where further riveting is carried out. Meanwhile the centre section of the underframe is being assembled on a mobile jig on one of two parallel roads at (4) or (4a). On completion, the "centre" is moved forward for riveting, and the gang that have assembled it repeats its work on the adjacent road. When riveted, the "centre" from (4) is moved by means of lifting gear on an overhead runway to (6), where it is placed on a main assembly jig, on which also are located the solebars from (3) and the headstocks from (5). In due course, the "centre" at (4a) is moved across the assembly area and is lifted by a second set of overhead lifting gear to the second main assembly jig at (6a).

The principle of alternating or "shuttle" movement is maintained until the final stages. While the frame is being assembled at (6), riveting of the complete assembly is being carried out at (7) on the underframe previously assembled at (6a). Wheels, fitted with axleboxes at (8), are then run into position at (9) and the finished frame from (7) is lifted over on to them, after which the empty mobile jig at (7) returns to (6a) for further loading, and the assembled frame at (6) is moved to (7) for final riveting.

From (9) the underframe on its wheels is moved over a turntable to (10) for fitting of buffing gear, drawgear and brakegear, after which it is painted and transferred to the body shop for sheeting. The body shop adjoins the sawmill, which is also conveniently placed for the provision of timber to the wagon repair shop.

In the sawmill, of which the structure was twice severely damaged by enemy action during the war, timber is milled for new wagons and wagons which are undergoing repair at Ashford and for repairs at out-stations. A feature of this shop is the method of disposal of wood waste. Sawdust and chippings from the machines are extracted by suction plant and fed to an incinerator, the gases from which pass to a boiler and raise steam, which in turn is used for heating the sawmill, by "Univectair" heaters, and for other purposes. Excess sawdust and chippings can be diverted to a storage shed, and eventually extracted again by the plant and fed to the incinerator.

Underframe shop yard with material stacked by fork-lift truck which may be seen working

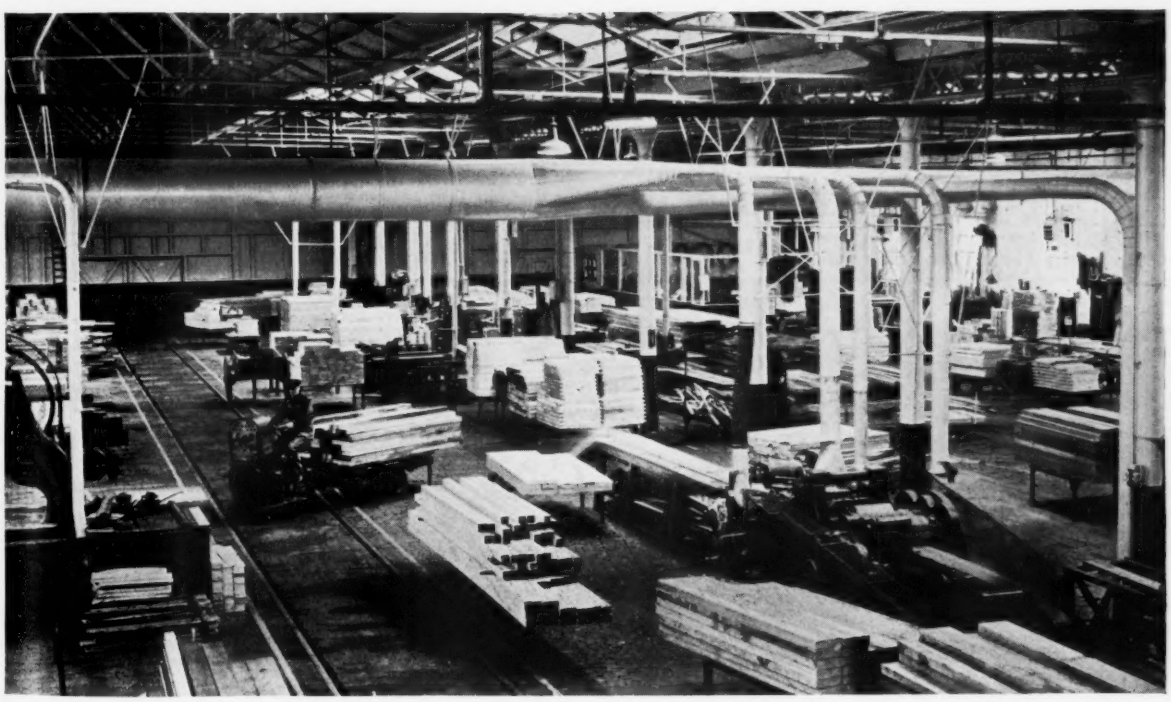
Wagon Shops at Ashford Works, Southern Region—I

Assembly area of the underframe shop

Riveting of underframe on mobile jig in the underframe shop

Wagon Shops at Ashford Works, Southern Region—I

Sheeting of open goods wagons being carried out in the body shop to which assembled frames and wheels are transferred from the underframe shop



A portion of the sawmill, showing pipes by which sawdust and chippings are extracted from the machines

Widening the Zurich-Sargans Line

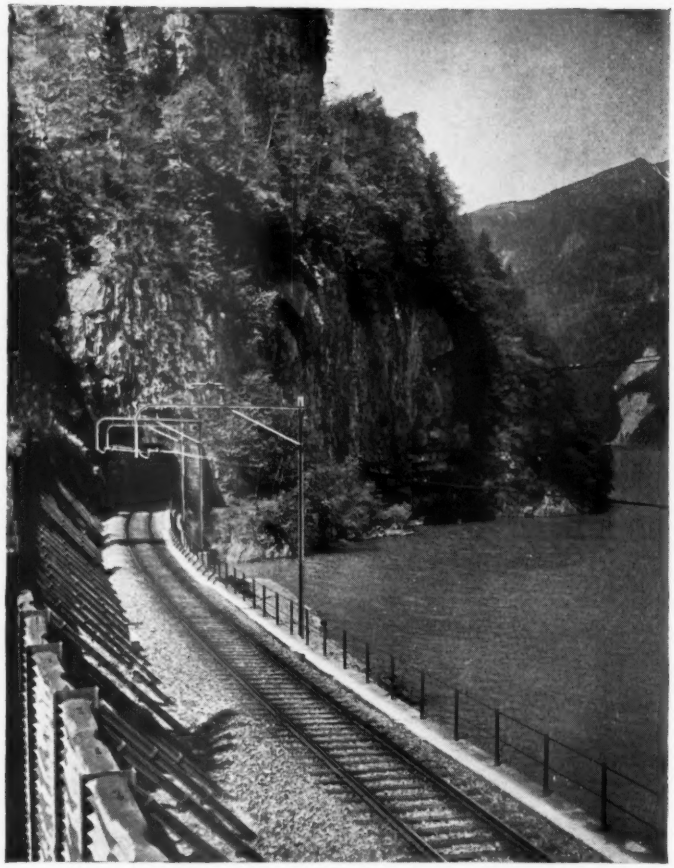
Heavy engineering works are being undertaken to give a double track throughout on a main line in Eastern Switzerland

GOODS and passenger traffic between Western and Eastern Europe *via* the Arlberg route through Austria, with a considerable tourist traffic to and from the Engadine, Davos and other resorts in the canton of Grisons, passes over the Zurich-Sargans main line. Of this 56-mile stretch, two sections, from Zurich to Lachen and from Flums to Sargans, have been doubled, leaving 25 miles between Lachen and Flums, on which work is in progress.

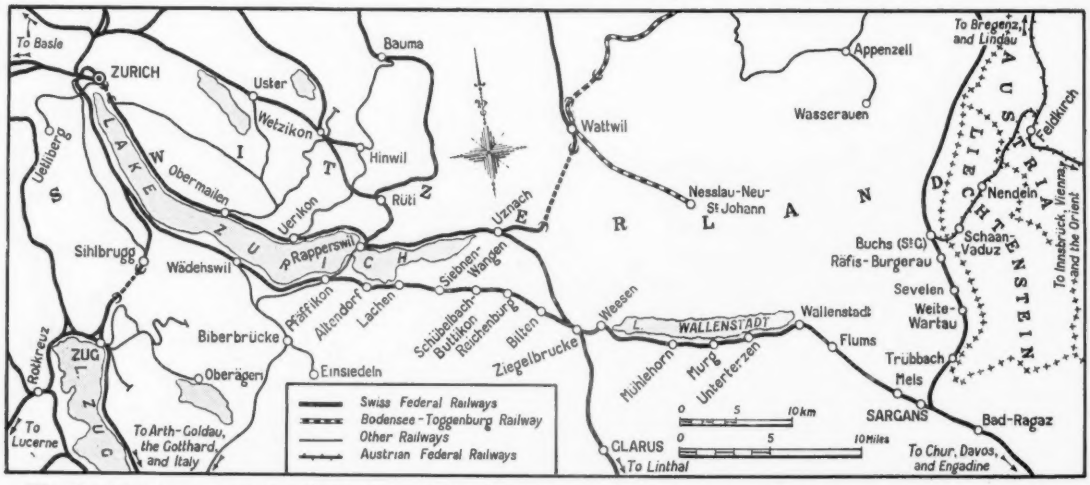
The chief difficulty has been the terrain between Weesen and Murg; here the line skirts the foot of the mountains where they drop steeply down to the Wallensee lake. The substructure of the sections Schübelbach-Reichenburg-Ziegelbrücke and Unterterzen-Wallenstadt-Flums is being completed. Drawings for the work on the Lachen-Wangen and Murg-Unterterzen sections have been made, but work has not yet been begun.

The reason for the doubling of the eastern sections before the western sections is the undertaking by the cantons of Schwyz and Glarus of extensive drainage works in the valley of the River Linth, through which the line runs near Weesen; the opportunity was taken, whilst these drainage works were in progress, to complete the substructure for the additional track. This included overline and underline bridges, and culverts.

Difficulty was encountered in building on marshy soil, and was overcome by the use of piles capped with concrete to support the roadbed. Twenty-six level crossings are being abolished. Between Unterterzen and Wallenstadt the principal major work, the double-track Bommerstein tunnel, which has been in use for single-line working since 1940, is in full use. The old single-track tunnel has been turned over to the cantonal authorities of St. Gall, who will make use of it for other purposes. Near Unterterzen Station the Stornenbüel cutting is being widened and a retaining wall built with a maximum height of 40 ft. This wall will support the highroad which parallels the railway at a higher level. At this point there existed a promontory,



Zurich-Sargans line alongside Wallensee, Swiss Federal Railways



The Zurich-Sargans section of the Swiss Federal Railways which is being doubled between Lachen and Flums

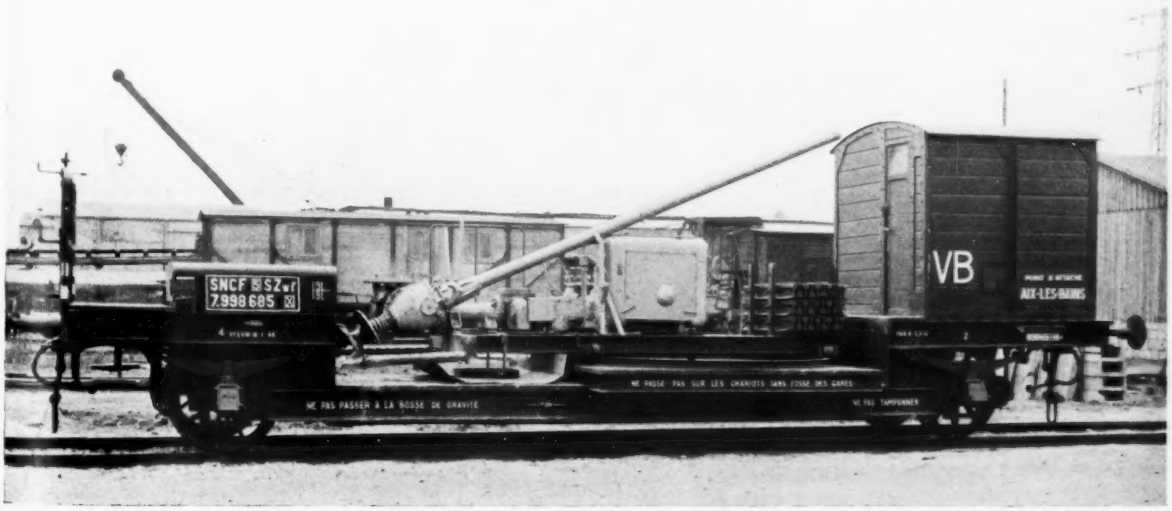
formed by falls of rock from the mountain, which it has been necessary to demolish; the *débris* is used as necessary for filling. The space along the lake shore is here sufficient only for the existing single track, and filling has been carried on for some years. To give a firm foundation, 500 concrete blocks from old anti-tank defences were sunk in the lake to a depth of 30 to 50 ft. Settlement of the subsoil has occurred from time to time, though on a diminishing scale.

To protect the lakeside embankment against erosion by waves, the lower portion has been revetted with stone setts and the upper planted with shrubs. A series of curves of 14 chains radius has been flattened into 23 chains, which will allow of an increase in running speeds. Near Mols the highroad is being diverted and widened for a distance of 800 ft. Work is expected to be complete this year on all sections except that between Ziegelbrücke and Murg, which is only as yet in the planning stage. Because of the peculiar topographical difficulties, involving heavy expenditure, the Federal Railways are not at present able to put this work in hand.

We are indebted for the above particulars and for photographs to the Swiss Federal Railways.

Work in progress on doubling the Zurich-Sargans main line east of Unterterzen, Swiss Federal Railways

50-Cycle Traction in France



Borer drill for making pits for overhead standards on the Aix-les-Bains—La Roche-sur-Foran line of the French National Railways, which is being electrified on the 50-cycle system (*see article on page* 219)

North American Motive Power

Baltimore & Ohio Railroad coal train, with articulated 2-8-8-4 locomotive, shunted to allow fast freight train with four-unit Electro-Motive diesel locomotive to pass

Canadian Pacific train double-headed by Selkirk type locomotives surmounting the steep gradient at Field Hill, British Columbia, in the Rocky Mountains

RAILWAY NEWS SECTION

PERSONAL

South African Railways

Following the appointment of Mr. W. Marshall Clark, General Manager of the South African Railways, as Interim Secretary-General of the Central African Transport Conference, Mr. W. Heckroodt, hitherto Deputy General Manager, has been appointed General Manager, South African Railways, with effect from February 15, and Mr. D. H. C. du Plessis, Chief Staff Manager, becomes Deputy General Manager.

Mr. L. C. Grubb, Assistant Chief Mechanical Engineer (Motive Power), Johannesburg, has been appointed Chief Mechanical Engineer, with headquarters at Pretoria, in succession to Dr. M. M. Loubser, retired; and Mr. C. T. Long, Inspection Engineer, has been appointed to the post vacated by Mr. Grubb.

The following have been appointed as System Managers: Mr. C. J. H. Schoombie (Cape Town), Mr. H. A. Gregorowski (Durban), and Mr. H. J. C. Bosman (Johannesburg).

Major-General Sir Donald Jay McMullen has been elected a Director of the Peruvian Corporation Limited.

Mr. Hector McNeil, General Manager of Babcock & Wilcox Limited, has been appointed a Director.

Mr. C. W. G. Elliff has been appointed a Director of Maidstone & District Motor Services Limited, in place of Mr. H. A. Short, who has resigned.

The peerage conferred on Mr. John Wilmot, who was Minister of Supply, 1945-47, has been gazetted by the name, style, and title of Baron Wilmot of Selmeston, of Selmeston in the County of Sussex. That conferred on Mr. Joseph Henderson, a Lord Commissioner of the Treasury, who was President of the National Union of Railwaymen, 1933-36, has been gazetted by the name, style and title of Baron Henderson of Ardwick, of Morton Park in the City of Carlisle.

London Midland Region Staff Changes

The following staff changes in the London Midland Region are announced:—

Mr. N. Horner, Accountant, Associated Humber Lines, Hull, to be Assistant to Accountant, Euston.

Mr. J. C. Frawley, Hotels Accountant, Eastern & North Eastern Regions, Marylebone, to be Hotels Accountant, Accountant's Department, Watford, H.Q.

Mr. A. E. Snelgrove, Goods Agent, Stoke, to be Assistant to District Goods & Passenger Manager, Stoke.

Mr. C. W. Evans, Head Office Inspector (Shunting Analysis—Freight Services), Divisional Operating Superintendent's Office, Manchester, to be Assistant Divisional Controller (Passenger Services) in that office.

Mr. W. Heckroodt, M.Inst.T., who, as recorded elsewhere on this page, has been appointed General Manager of the South African Railways, was born in the Orange Free State, and entered railway service at the age of 16 in the Transportation Department. He rose through the clerical and stationmaster grades, and was appointed Welfare Officer on the Orange Free State System in 1927. In 1928 he was made Private Secretary to the Minister of Railways, and, in 1932, Secretary to the Railway Board. In 1934 he became Staff Controller in the General Manager's Office. In 1936 he was transferred to Pretoria as System Manager, and three years later was appointed Chief Stores Superintendent, a position he held for nine months, after which he became Understudy to the Chief Accountant. In January, 1940, Mr. Heckroodt was appointed Chief Accountant, and in 1941 was made Chief Traffic Manager. He was appointed Deputy General Manager in October, 1945.

Mr. W. Heckroodt

Appointed General Manager, South African Railways

Mr. E. J. Waddington and Mr. R. P. H. Yapp have been appointed Directors of Vickers-Armstrongs Limited. Mr. Waddington remains Secretary of the company.

Lord Aldenham has been appointed to succeed Mr. Rupert Beckett, on his retirement from that position on March 31, as Chairman of the Westminster Bank Limited. Mr. Beckett will remain a member of the board. Lord Aldenham was a Director of the London Midland & Scottish Railway Company, and Mr. Beckett of the London & North Eastern Railway Company.

Alderman W. T. Venton, sometime Western Divisional Commercial Manager of the Southern Railway, has been elected President of the Retired Railway Officers' Society for 1950.

Mr. G. Lochrie, Assistant to Road Transport Controller, Scottish Region, British Railways, has been appointed Cartage Assistant to Commercial Superintendent, Scottish Region.

Mr. R. Stubbs, Joint Managing Director of Lowmoor Best Yorkshire Iron Limited, left recently for a business trip to South Africa.

Mr. V. N. Jolliffe, Electrical Engineer, South Wales Docks, has retired from the service of the Docks & Inland Waterways Executive. Mr. Jolliffe had 43 years' service, first with the Alexandra Dock Company, and afterwards with the Great Western Railway, the Railway Executive and the Docks & Inland Waterways Executive. He is succeeded by Mr. E. R. Radway.

Mr. D. Derham has been appointed District Manager, Notts & Derby District, Midland Division, Road Haulage Executive, in succession to the late Mr. R. W. Keetch. He was Chairman & Managing Director of Derham & Allen Limited, Hilton, near Derby, until the undertaking was acquired by the British Transport Commission, and became Group Manager, South Derbyshire Group, Road Haulage Executive, in May, 1949.

Mr. Robert F. Fryars (while retaining his seat on the board) is retiring from the office of Secretary of Associated Commercial Vehicles Limited, and its associated companies—Associated Acceptances Limited, Hardy Motors Limited, and Four Wheel Drive Motors Limited (now A.C.V. Sales Limited). His successor as Secretary of Associated Commercial Vehicles Limited will be Mr. D. G. Muir, the present Comptroller; Mr. P. W. J. Simcox will be Assistant Secretary.

Mr. R. P. Humphrys, hitherto Chief Solicitor, London Midland Region, British Railways, who, as recorded in our January 13 issue, has been appointed Deputy Chief Solicitor to the new Legal Service of the British Transport Commission, was born on May 3, 1890, at Horsmonden, Kent, and was educated at University School, Hastings, and at Clare College, Cambridge, where he graduated in 1912. He was then articled to Mr. J. W. Alsop, of Alsop, Stevens, Crooks & Company, Solicitors, of Liverpool. In September, 1914, he was commissioned in the 7th Battalion, Kings (Liverpool) Regiment, and served in France until invalided home in

Mr. R. P. Humphrys

Appointed Deputy Chief Solicitor, British Transport Commission Legal Service

Mr. P. R. Deshayes

Appointed Managing Director, French Railways Limited, London

Lafayette [*Dublin*

Mr. H. R. Browne

Assistant Civil Engineer, Great Northern Railway (Ireland), who has retired

April, 1916, with trench fever. He rejoined his battalion in December, 1916, in the Ypres Salient, and commanded a company in the third battle of Ypres, July, 1917, and until wounded at Festubert in April, 1918. He was mentioned in dispatches. He was demobilised, with the substantive rank of Captain, in October, 1919; was admitted a solicitor in July, 1920; and returned to Alsop, Stevens, Crooks & Company as Managing Clerk. In March, 1921, Mr. Humphrys joined the staff of the Solicitor to the L.N.W.R. as Junior Common Law Solicitor. In 1928 he became head of the department dealing with county court, workmen's compensation and police court matters; and in 1932 was appointed Divisional Solicitor, Manchester, L.M.S.R. In 1934, he returned, at his own request, to Euston, as Solicitor Assistant, Common Law. In 1939 he was appointed Assistant Solicitor to the company, and in 1945 became Chief Solicitor, which position he retained in the London Midland Region of the Railway Executive until his present appointment.

Mr. P. R. Deshayes has been appointed Managing Director of French Railways Limited, London (General Representatives in Great Britain of the French National Railways), in succession to Mr. P. W. Le Mattre, who has been appointed General Representative in America of the French National Railways, and who is leaving for the U.S.A. shortly. Mr. Deshayes was born on August 17, 1912, and is an engineer graduate of the Ecole Centrale des Arts et Manufactures. After practical training in England in the works of the Renold & Coventry Chain Co. Ltd., at Manchester, he joined the Paris-Lyons-Mediterranean Railway in 1936. He was called up in August, 1939, as Lieutenant in the Artillery, and was a prisoner of war from June, 1940, to August, 1945, being liberated by the Soviet Army and sent to a camp in Russia. After his return to Paris, he resumed railway duties, as Head of the Control Section in Paris of the South Eastern Region Operating Department, French National Railways. During his war service Mr. Deshayes won the Croix de Guerre.

Mr. H. R. Browne, B.A., B.A.I., A.M.I.C.E., who, as recorded in our February 3 issue, has retired from the position of Assistant Civil Engineer, Great Northern Railway (Ireland), obtained an engineering degree at Trinity College, Dublin, in 1908, and afterwards served for six years as Surveyor in the Irish Land Commission, until 1915. In that year he was appointed Surveyor to the Great Northern Railway (Ireland). In 1933 Mr. Browne was appointed Permanent Way Assistant to the Chief Engineer, and on January 1, 1939, became Assistant Civil Engineer.

Mr. J. Hannah

Appointed Inspecting Engineer for Western Australia, Agent-General's Office, London

Mr. H. E. Kemp

Appointed Executive Officer (Wagons), Railway Executive

Mr. B. Adkinson

Appointed Administrative & Motive Power Assistant to Chief Officer (Motive Power), Railway Executive

Mr. J. Hannah, M.B.E., A.M.I.Mech.E., A.M.I.Loco.E., who retired recently from Indian State Railways service, and has taken up an appointment as Inspecting Engineer for the State of Western Australia, attached to the Office of the Agent-General for Western Australia in London, was educated at Girvan High School and Ayr Academy, and received his technical training at the Royal Technical College, Glasgow. He entered the locomotive works of the old Glasgow & South Western Railway at Kilmarnock in 1919, and on completion of apprenticeship proceeded to St. Rollox, Glasgow, where he gained further experience, on foundry practice and works management. He was appointed by the Secretary of State for India as Assistant Works Manager, Indian State Railways, in 1928, and was posted to the Great Indian Peninsula Railway, Bombay, in 1929. He was transferred to the Eastern Bengal Railway at Saidpur Workshops and became Works Manager in 1934. From 1942-45 he was on special duty as Munitions Officer, Bengal-Assam Railway, Kanchrapara. In 1947 Mr. Hannah became Deputy Chief Mechanical Engineer, Workshops, of the East Indian Railway, and later Running Superintendent of that railway, in which post he remained until retirement.

Mr. H. E. Kemp, M.B.E., Outdoor Carriage & Wagon Assistant, Southern Region, London Bridge, who, as recorded in our February 10 issue, has been appointed Executive Officer (Wagons), Railway Executive Headquarters, was educated at the King Edward VI School, Southampton, and commenced his railway career as a general apprentice at Eastleigh Carriage Works in 1920. In 1926 he was moved to London (Grosvenor Road, Victoria) as an Assistant to the Outdoor Carriage & Wagon Assistant, and was appointed Chief Carriage & Wagon Inspector in 1933. He was appointed Outdoor Carriage & Wagon Assistant to the Chief Mechanical Engineer in 1936. He was awarded the M.B.E. in the New Year Honours, 1947. Mr. Kemp has represented the Southern Region on the Wagon Repairs Committee since its inception and is its present Chairman.

Mr. B. Adkinson, B.Sc. (Eng.), District Motive Power Superintendent, Doncaster, Eastern Region, who, as recorded in our February 10 issue, has been appointed Administrative & Motive Power Assistant to the Chief Officer (Motive Power), Railway Executive Headquarters, joined the Great Northern Railway at Doncaster as an apprentice in 1910. After working at Colwick, Lincoln, Ingrow, Leeds, Peterborough, Ardsley and Hatfield, he became Locomotive Depot Superintendent at Hitchin in 1928 and at Hornsey in 1931. In 1937 he was appointed Assistant District Locomotive Superintendent, Kings Cross; in February, 1942, District Locomotive Superintendent, Norwich; in July, 1943, District Locomotive Superintendent, Gorton; and in November, 1945, District Locomotive Superintendent, Doncaster. Mr. Adkinson was educated at Kings School, Grantham, and Nottingham University; he gained the City & Guilds of London certificate in Mechanical Engineering in 1917, and the B.Sc. (Engineering) degree at London University in 1919.

Australian & New Zealand Railways Commissioners' Conference

At the Australian & New Zealand Railways Commissioners' Conference held in Melbourne recently, representatives were present from every Government railway system in Australia, as well as from the New Zealand Government Railways. Lt.-Colonel Norman C. Harris, Chairman of the Victorian Railway Commissioners, who has just retired, was, in conjunction with the conference, entertained to a farewell dinner, and made the recipient of a presentation, by the other Commissioners. The conferences are held at approximately twelve-monthly intervals, and all matters relating to railway operation in Australia and New Zealand are discussed. The Chairmanship rotates, and the General Manager of the New Zealand Government Railways will be Chairman of the next Commissioners' Conference, which will be held in Wellington in February, 1951. A conference of officers is held before each Commissioners' Conference.

Mr. B. D. Rampala, Chief Mechanical Engineer of the Ceylon Government Railway, arrived recently on a short visit to the United Kingdom, to assist the Crown Agents for the Colonies in the selection of diesel-electric locomotives for that railway.

Mr. Juan Natalio López Argüello has been appointed General Manager of the Patagonian National Railway, in succession to Mr. C. A. Pizzorno, who as already recorded, has been appointed General Manager of the General Mitre (former Central Argentine) Railway.

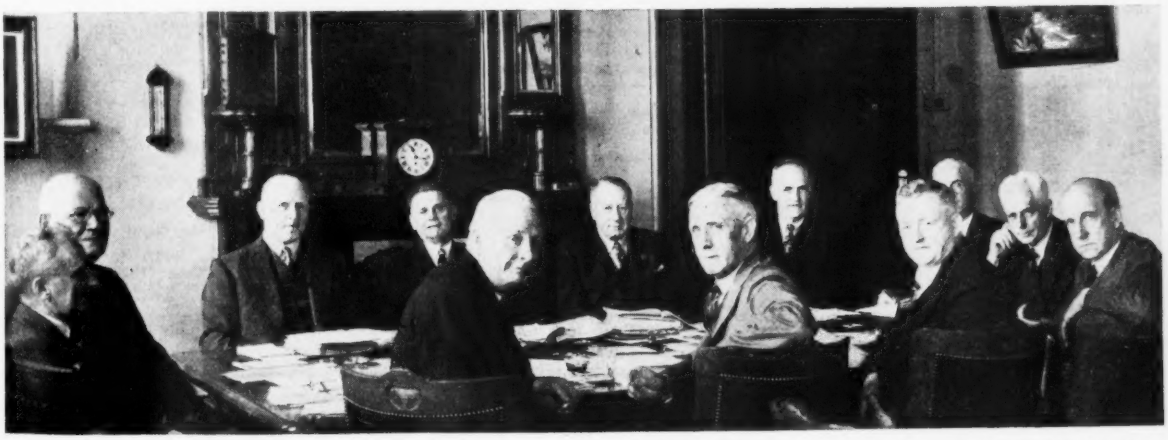
Mr. J. R. Hudson, hitherto Works Manager of the Moss Gear Co. Ltd., has been elected a Director; he will hold the position of Works Director.

Mr. John Hitchcock, who since 1946 has been Personal Assistant to the Managing Director of Henry Wiggin & Co. Ltd., Birmingham, has been appointed to the newly-created post of Assistant Managing Director.

Mr. G. P. Tinker has been appointed Managing Director of Birlec Limited, Birmingham, in succession to the late Mr. A. G. Lobley.

We regret to record the death on February 7, at the age of 65, of Mr. Frederic A. Schaff, Chairman of Combustion Engineering-Superheater Incorporated, U.S.A. Mr. Schaff became President of the Superheater Company (U.S.A.) in 1930, and President of the Combustion Engineering Co. Inc. in 1933; he was elected Chairman of the Combustion concern in 1940, and, on the merger of the Combustion and Superheater concerns in January, 1949, became Chairman of the combined company.

Australian & New Zealand Railways Commissioners' Conference



Commissioners and other representatives of Australian and New Zealand railways at the recent Commissioners' Conference in Melbourne (see paragraph above)

Left to right round table: Messrs. T. E. Maloney, Commissioner for Railways, Queensland (Chairman); F. C. Garside, Commissioner for Railways, New South Wales; M. S. Wilson, Commissioner for Transport, Tasmania; R. H. Chapman, Commissioner, South Australian Railways; E. H. Langford, Assistant General Manager, New Zealand Railways; R. G. Wishart, then Commissioner (now Chairman of Commissioners), Victorian Railways; Lt.-Colonel N. C. Harris, then Chairman, Victorian Railways Commissioners (now retired); Messrs. A. G. Fletcher, Commissioner, Victorian Railways; P. C. Raynor, Assistant Commissioner, Western Australian Railways; A. G. Hall, Commissioner of Railways, Western Australia; P. J. Hannaberry, Commissioner, Commonwealth Railways; A. J. McAndrew, Secretary of the conference (seated on right of Chairman at head of table, on left)

British Transport Commission Statistics

*Summary of the principal statistics for the four-week period ended January 1**

British Railways passenger receipts for November, 1949, were 8 per cent. less than in November of the preceding year; the decrease is shared by all fare categories except excursion tickets (in which fewer facilities were offered in 1948); the decline in season ticket receipts is marked. Passenger receipts for the last four-weekly period of 1949 are less than for period No. 13 in 1948; their increase over period No. 12 is due to the incidence of the Christmas holiday.

London Transport railway receipts for period No. 13 show a slight decrease from both last year and the preceding period, also with a marked fall in season ticket receipts; bus and coach takings are slightly higher than last year, but seasonally (through Christmas) less than for period No. 12. Provincial and Scottish road transport undertakings of the B.T.C. showed receipts increased both over the 1948 figure and the preceding period. B.T.C. passenger shipping receipts show a seasonal increase over period No. 12, but are markedly less than in 1948, for which latter no explanation is forthcoming.

Freight traffic receipts under all main headings decreased both from 1948 and from period No. 12. In tonnage originating there were corresponding decreases, both from last year (except in mineral traffic) and from the preceding period, both of which are partly due to the Christmas holiday, only part of which fell in period No. 13 of 1948.

The average wagon load at starting point rose to 8·4 tons compared with 8·2 tons in 1948; this improvement was shared by all Regions and all traffics, though least marked in general merchandise. The number of loaded wagons per train, at slightly over 23, remained much the same. Net ton-miles per total engine-hour, at 551, compare with 534, in 1948, and 554 for period No. 12. Freight train-miles per train engine-hour declined, but, at 7·8, were an improvement on 7·4 last year. Coal consumption per engine-mile rose seasonally, but was less than in 1948.

* British Transport Commission Statistics, 1949. Series No. 13. Period to January 1. London: British Transport Commission. Price 1s.

STAFF

—	Commission's Head Office	British Railways	London Transport	British Road Services (Road Haulage)	Road Passenger (Provincial and Scottish)	Hotels & Catering	Ships, Vessels & Marine	Docks, Harbours, Wharves, and Inland Waterways	Railway Clearing House	Common Services: Commercial Advertisement	Total
No. of employees	236	624,528	99,623	67,289	55,364	16,189	5,769	24,908	651	155	894,712
Inc. or dec. ...	−2	−2,059	−289	−146	−317	−129	−47	−150	−9	Nil	−2,856

1. BRITISH TRANSPORT COMMISSION RECEIPTS

—	Four weeks To Jan. 1, 1950	Four weeks To Dec. 26, 1948	Inc. or dec.	Aggregate for 52 weeks 1949	Aggregate for 52 weeks 1948	Inc. or dec.
	£000	£000	£000	£000	£000	£000
British Railways—						
Passengers	7,943	8,259	− 316	113,583	122,244	− 8,661
Parcels, etc., by passenger train... ...	2,183	2,250	− 67	28,956	29,267	− 311
Merchandise	5,548	6,516	− 968	79,777	83,611	− 3,834
Minerals	2,247	2,400	− 153	29,558	29,143	+ 415
Coal & coke	5,096	5,484	− 388	67,911	66,198	+ 1,713
Livestock	121	136	− 15	1,536	1,387	+ 149
	23,138	25,045	− 1,907	321,321	331,850	− 10,529
British Railways— C. & D. and other road services ...	605	685	− 80	8,598	8,629	− 31
Ships and Vessels	631	603	+ 28	10,581	9,747	+ 834
London Transport—						
Railways	1,104	1,161	− 57	14,340	14,617	− 277
Buses & coaches	2,276	2,259	+ 17	31,288	31,463	− 175
Trams & trolleybuses	810	826	− 16	10,916	11,205	− 289
	4,190	4,246	− 56	56,544	57,285	− 741
British Road Services— Freight charges, etc.	4,114			37,377		
Road Passenger Transport	2,314	2,238	+ 76	35,134	34,335	+ 799
Docks, Harbours & Wharves	881	878	+ 3	11,106	10,362	+ 744
Inland Waterways	111	107	+ 4	1,518	1,353	+ 165
Hotels & Catering	988	981	+ 7	13,253	13,276	− 23

2. BRITISH RAILWAYS

(A) Passenger Journeys Originating in the Month of November

—	Region												Total	
	London Midland		Western		Southern		Eastern		North Eastern		Scottish			
	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.
Ordinary fares	781	−30·6	494	−12·6	1,611	−8·1	769	−6·2	89	−38·9	193	−37·2	3,097	−16·5
Monthly returns	2,884	−21·4	1,188	−17·8	5,481	−9·0	2,547	−13·1	257	−26·3	506	−31·4	12,863	−15·1
Excursion, weekend, cheap day, etc.	3,888	−78·7	1,662	−20·0	3,365	−25·9	1,311	−98·1	801	−51·9	1,316	−127·4	12,343	−54·3
Workmen	5,817	−3·8	1,793	−4·4	6,771	−0·3	3,495	−3·5	861	−15·1	929	−8·1	19,666	−3·2
Other descriptions ...	876	−19·2	606	−19·7	1,099	−8·1	525	−12·2	207	−14·2	250	−24·8	3,563	−15·3
Season tickets	3,133	−13·2	1,528	−6·0	9,262	−1·5	3,271	−1·7	455	−16·6	1,263	−21·4	18,912	−6·0
Total	17,379	−1·9	7,271	−5·0	27,589	−0·8	11,918	−0·3	2,670	−5·4	4,457	−2·5	71,284	−1·7

(B) Freight Tonnage Originating

—	Region												Total	
	London Midland		Western		Southern		Eastern		North Eastern		Scottish			
	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.
Merchandise	1,278	−5·4	704	−8·6	248	−11·0	615	−8·1	556	−2·4	576	−14·0	3,977	−7·7
Minerals	1,549	+1·1	677	−0·2	137	−3·0	850	+4·1	812	+0·7	641	−5·8	4,666	−0·4
Coal & coke	4,164	−4·9	2,045	−3·6	268	−6·0	2,003	−3·4	2,533	−3·1	1,650	−3·6	12,663	−2·8
Livestock	15	−11·0	11	−14·8	6	Nil	2	−31·0	5	−7·0	18	−3·7	57	−9·2
Total	7,006	−3·8	3,437	−4·0	659	−6·2	3,470	−2·6	3,906	+1·8	2,885	−6·4	21,363	−3·1

(C) Net Ton Miles

	London Midland		Western		Southern		Eastern		North Eastern		Scottish		Total	
	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.
Merchandise & livestock ...	177,083	−10·8	95,847	−1·8	22,424	−12·5	78,667	−6·6	53,338	+3·3	77,987	−12·5	505,346	−7·6
Minerals	129,948	−7·6	73,512	+4·8	16,077	+6·0	91,681	−3·4	33,353	−4·9	38,422	−11·8	382,993	−4·1
Coal & coke	286,776	−6·8	130,467	−0·5	24,734	−6·6	161,140	−7·8	64,634	−6·8	72,256	+1·3	740,007	−5·2
Total, all classes of traffic...	593,807	−8·2	299,826	+0·3	63,235	−6·0	331,488	−6·3	151,325	−3·0	188,665	−7·5	1,628,346	−5·7

(D) Train Miles

	London Midland		Western		Southern		Eastern		North Eastern		Scottish		Total	
	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.	000	Per cent.
Coaching train miles—														
Steam—														
Loaded	4,049	−4·6	2,973	+5·5	1,471	−0·5	2,507	+7·1	981	+1·1	1,726	−0·7	13,707	+0·8
Empty	123	−5·3	135	+8·9	49	+0·2	89	+11·2	39	−4·9	53	+5·7	488	+3·0
Total loaded & empty ...	4,172	−4·7	3,108	+5·6	1,520	−0·5	2,596	+7·2	1,020	+0·8	1,779	−0·6	14,195	+0·9
Electric—														
Loaded	421	+1·6	—	—	2,796	−1·2	133	+536·5	90	+1·3	—	—	3,440	+2·6
Empty	17	−6·2	—	—	60	−1·1	7	+267·8	10	−9·8	—	—	94	+2·9
Total loaded & empty ...	438	+1·2	—	—	2,856	−1·2	140	+513·0	100	+0·1	—	—	3,534	+2·6
Freight train miles—														
Loaded	2,791	−8·0	1,617	+0·5	495	−6·3	1,591	−2·6	869	−4·8	1,394	−2·6	8,757	−4·3
Empty	522	−0·5	191	−1·3	18	+60·5	342	+9·8	198	+0·9	206	+1·5	1,477	+2·6
Total loaded & empty ...	3,313	−6·9	1,808	−0·3	513	−4·8	1,933	−0·6	1,067	−3·8	1,600	−2·1	10,234	−3·3
Total train miles	7,923	−5·3	4,916	+3·6	4,889	−1·4	4,669	+6·4	2,187	−1·5	3,379	−1·3	27,963	−0·5

(E) Freight Train Miles per Train Engine Hour

London Midland		Western		Southern		Eastern		North Eastern		Scottish		Total	
1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948
6·55	6·13	8·33	8·41	8·60	8·29	7·83	7·35	9·41	8·75	9·42	8·97	7·80	7·39

(F) Locomotive Coal Consumption

	London Midland		Western		Southern		Eastern		North Eastern		Scottish		Total	
		Per cent.		Per cent.		Per cent.		Per cent.		Per cent.		Per cent.		Per cent.
Tonnage consumed (000s)	354	−7·2	180	−2·0	76	−4·9	200	−1·1	92	−3·9	176	−2·3	1,078	−4·0
Lb. per engine mile ...	69·11	+0·2	55·92	−2·0	58·04	−0·6	68·30	−2·0	65·87	+0·2	75·89	nil	66·16	−0·7

(G) Rolling Stock Position

	Operating stock	Number under repair	Available operating stock	Serviceable stock in 1948
Locomotives	19,875	3,285	16,101	16,253
Coaching vehicles	56,296	4,859	51,437	49,966
Freight wagons	1,113,413	93,074	1,020,069	1,066,822

3. INLAND WATERWAYS

Tonnage of traffic and ton miles

	Tonnage	Per cent.	Ton miles	Per cent.
	000		000	
General merchandise	296	−4·6	4,632	−9·9
Liquids in bulk	133	−3·1	3,297	+11·6
Coal, coke, patent fuel & peat	446	−7·2	6,304	+1·0
Total	875	−5·7	14,233	−0·7

4. LONDON TRANSPORT

(A) Passenger Journeys Originating

	Number	Per cent.
	000	
Railways	49,945	−4·8
Buses & coaches	203,905	+0·7
Trams & trolleybuses ...	88,046	−1·8
Total	340,896	−0·8

(B) Rail and Road Car Miles

	Miles	Per cent.
	000	
Railways	17,211	−2·2
Buses & coaches	22,852	−1·2
Trams & trolleybuses ...	8,295	−1·2
Total	48,358	−1·5

Manchester—Sheffield—Wath Electrification

Progress of Eastern Region scheme for complete electrification for all traffic

On February 15, representatives of the technical press visited the main line of the Eastern Region between Manchester and Sheffield and Wath, which is being electrified on the 1,500-volt d.c. overhead system. The party travelled from Sheffield, and stops were made at several points to inspect the works in progress.

The following lines, covering 75 route-miles, and 330 track-miles, are included in the scheme:—

Manchester London Road to Sheffield Rotherwood Sidings
Penistone Barnsley Junction to Wath *via* Worsborough Glossop Branch
Guide Bridge to Ashton Moss Sidings, on the Oldham line
Fairfield to Manchester Central and Trafford Park Sidings
Ashburys to Ardwick goods yard

By far the most important of the civil engineering works associated with the electrification is the construction of the new double-track tunnel, over 3 miles long, through the Pennine Range, between Dunford Bridge and Woodhead, to replace the existing twin single-line tunnels, the first of which was opened more than a century ago. The plans for the new tunnel were prepared under the direction of Mr. J. I. Campbell, Civil Engineer, Eastern Region, British Railways. Sir William Halcrow & Partners are acting as Consulting Engineers; and the works are being carried out by Balfour Beatty & Co. Ltd. Preliminary work was begun early in 1949, and the pilot tunnel has now been driven for a distance of about 1,600 ft. at Woodhead, and some 650 ft. at Dunford Bridge. It is expected that the full-size tunnel will be completed in 1952.

At Thurgoland, between Penistone and Sheffield, the clearances in the existing double-line tunnel were insufficient for the overhead equipment for two tracks, and a new single-line tunnel, 330 yd. long, was constructed for down trains, and brought into use on October 3, 1948. The up line has now been slewed into the centre of the old tunnel.

Many of the masonry arch bridges over the railway did not give sufficient clearance for the overhead equipment. This difficulty is being met, in some cases, by lowering the track, and in others the arches are being demolished and replaced by a structure of the flat-deck type. Forty-four overbridges are to be so altered or reconstructed. Of that number, 22 are being reconstructed in pre-stressed concrete, as additional headroom can be secured only by a reduction in the constructional depth.

A new type of pre-stressed concrete beam, with twisted untensioned high-strength wires, and plain wires tensioned in the usual way, is being used for these bridges. This type of construction already has been used for two bridges on the Wath branch, where the road levels could not be raised. Considerable subsidence is expected in this area, and the bridges have been designed to allow the superstructure to be jacked up as required. Three jacking pockets have been left at the top of each masonry abutment, and the cased concrete jacking beams form a bearing for the bridge superstructure.

The steel structures for supporting the overhead wires have been erected for several miles, although this part of the work is still far from complete. The normal spacing of these supports is 210 ft., but this distance is reduced on curves. The structures normally consist of two masts and a bridge member spanning the tracks, but at complicated junctions, and large groups of sidings, compound structures, with three or more masts are being used. Special structures, on which the bridge member can be raised, have been designed for areas liable to colliery subsidences. British Insulated Callender Cables Limited is the contractor for the overhead equipment.

The overhead line equipment will be on the compound catenary system, consisting of a main catenary cable from which an auxiliary catenary is suspended by dropper wires. From this, in turn, is suspended a solid grooved cadmium contact wire, with which the current collector makes contact.

The primary supply of current will be delivered by the British Electricity Authority at 33,000 volts to the traction sub-stations at Gorton, Neepsend, and Aldham Junction. These three points will be inter-connected by a lineside cable, which also loops into the other traction

Gilroyd Lane Bridge on the Wath branch, showing concrete jacking beams, and extensions on the masts of the overhead structures, to allow for colliery subsidences

sub-stations, to ensure alternative supplies of current in the event of an interruption at one of the supply points.

The 11 traction sub-stations will be equipped with 33,000-volt switch gear for controlling the primary supply and equipment at the sub-stations, mercury arc rectifier equipments for converting the high-tension supply to 1,500-volt d.c. for delivery to the overhead conductors, d.c. switchgear, control and auxiliary apparatus. The total capacity of the converting plant at the sub-stations will be 47,500 kw. The d.c. switch gear at the sub-stations is to be supplemented by additional gear in the track sectioning cabins.

Neither the sub-stations nor the track sectioning cabins normally will be attended, but will be under remote supervisory control from the control station at Penistone. The equipment at Penistone also will give an indication of the load and voltage of any sub-station, and telephone connections will be provided to all key points on the electrified system. The main contractor for the sub-station equipment is Bruce Peebles & Co. Ltd., and for the cables W. T. Henley's Telegraph Works Co. Ltd.

Motive power for main-line passenger trains and freight traffic will be provided by 85 mixed-traffic electric locomotives. Fifty-eight of these locomotives will be of the four-motor, four-axle type weighing 88 tons, and will have a maximum starting tractive effort of 45,000 lb., and a maximum speed of 65 m.p.h. The remaining 27 locomotives will be of the double-bogie six-motor, six-axle type, weighing 102 tons, and will have a maximum starting tractive effort 45,000 lb., and a maximum speed of 90 m.p.h. Apart from alterations to the cab, and other minor differences, these locomotives will be similar to the first of the four-motor type completed at Doncaster in 1941, which has been in service on the Netherlands Railways since September, 1947.

A section of the steam locomotive shops at Gorton has been laid out for the construction of these locomotives, and it is expected that the first one will be completed in July of this year. The electrical equipment will be erected by the Metropolitan-Vickers Electrical Co. Ltd., at the Dukinfield Works of British Railways.

The local passenger services between Manchester and Hadfield and Glossop will be provided by eight three-coach multiple-unit electric trains of the open saloon type, identical with those already in service between London (Liverpool Street) and Shenfield. The coaches are being built by the Metropolitan-Cammell Carriage & Wagon Co. Ltd., and the electrical equipment is being supplied by the General Electric Co. Ltd.

A maintenance depot for the overhaul and inspection of the locomotives and multiple-unit trains is being provided at Reddish, near Manchester, and there will be a small depot for locomotives only at Wath. The provision of a similar depot at Darnall, near Sheffield, is under consideration.

Royal Engineers (Transportation) Supplementary Reserve

Field-Marshal Sir William Slim at Silver Jubilee Dinner

The twenty-fifth annual dinner of Officers of the Royal Engineers (Transportation) Supplementary Reserve was held at the Criterion Restaurant on Friday last. Field-Marshal Sir William J. Slim, Chief of the Imperial General Staff, who is Honorary Colonel, was in the Chair. He was supported by over 150 officers; the guests included:—

Mr. W. P. Allen, Rt. Hon. Lord Ammon, Colonel V. M. Barrington-Ward, Messrs. A. E. H. Brown, B. W. C. Cooke, L. E. Ford, Sir Reginald Hill, General Sir Sidney Kirkman, Mr. D. R. Lamb, Lord Latham, Brigadier-General Sir Osborne Mance, Sir Ralph Metcalfe.

Field-Marshal Sir William Slim, in proposing the toast of the "The Guests," said that the Supplementary Reserve was now twenty-five years old and the dinner was a celebration of the Silver Jubilee. Among the guests that night were a number of leaders of large industries and he appreciated how much real help and support had been received both from the heads of industries and also from trade unions. In particular, the heads of the transport industry of this country were welcome because transport was the life-blood of the nation. During the last war the armies had depended very greatly on transportation and there could be little doubt that, should there be another war, dependence on transport would be even greater. There was nothing which played such an important part in the prosperity of the country in peace as transportation, nor anything that was so essential in war. Those engaged in it, therefore, had a double privilege, a double responsibility, and a double duty.

The Corps had been progressing during the difficult post-war years. Very successful camps had been held last year and railway personnel had responded very well. The Docks Companies had not done so well, but it was hoped that recruiting for these would improve. There could be no doubt that in the event of war, one of the first calls would be made on docks personnel.

Sir Reginald Hill, Chairman of the Docks & Inland Waterways Executive of the British Transport Commission, who replied to the toast, said that the admirable recruiting speech which had been made by Field-Marshal Sir William Slim would not fall on stoney ground. It was fully realised that military operations must depend in large part on persons trained in transport and that training in peace was the only safeguard if war should come. Therefore, it was not only a duty but common sense that the transport industry should give the Corps all the help in its power. He knew, too, that a leavening of men who had had military training at a centre such as Longmoor was a great help to civilian discipline and efficiency.

He was anxious to do all in his power to assist recruitment, and in this connection he wondered if the position of the Supplementary Reserve had been presented adequately to the men. In particular had there been adequate publicity? He was sure that men would respond once they realised the necessity. He would do all in his power, and so he was sure, would the rest of the guests, to see that this Silver Jubilee of the Corps was marked by filling up the ranks.

Retired Railway Officers' Society

The 49th annual general meeting of the Retired Railway Officers' Society at the Great Eastern Hotel, Liverpool Street Station, on February 14, was attended by a record number of members. The report for 1949 was submitted and adopted. The report stated that during the year the number of members had risen from 154 to 170, a record in the history of the Society. During the year 26 members were elected, but 10 members had died.

The monthly meetings had been well attended, and the social activities, also were very successful. At the autumn luncheon in London on November 8, 122 were present, of whom 55 were guests, the principal guest being the Rt. Hon. Harold Macmillan. An account of the luncheon was given in *The Railway Gazette* for November 11, 1949.

One of the Joint Auditors, Mr. A. E. Moore, presented the accounts for 1949, which showed a healthy balance, and were unanimously adopted. The retiring President, Mr W. H. J. Pyne, submitted the name of Alderman W. T. Venton as his successor for the Society's jubilee year, 1950. Alderman Venton, formerly Western Divisional Commercial Manager, Southern Railway, recently held office as Mayor of Sutton, and has been an active member of the Society for many years. In accepting the presidency, he expressed the hope that at every monthly meeting it might be possible for a member to give a talk on some of his experiences in railway or other walks of life, which should add materially to the interest of their meetings. Mr. E. Wharton expressed the thanks of the members to Mr. Pyne for his work during the year, and Major General G. S. Szlumper proposed that thanks be accorded the Honorary Treasurer, Mr. J. W. Lovejoy, the Honorary Auditors, Mr. A. E. Moore and Major A. S. Mills, and the Honorary Secretary, Mr. F. E. W. Cox, whose services had been of great benefit to the Society. The latter were re-elected to their various offices.

Irish Transport Bill

As was reported in our issue of November 11, 1949, the second stage of the Irish Transport Bill was passed on October 29 last, and when the debate was resumed in the committee stage on February 15, Mr. M. O'Sullivan made a plea on behalf of 300 clerical workers of C.I.E. who had retired before August, 1947, and who had been seriously affected by the increased cost of living.

Mr. Morrissey said that he had a good deal of sympathy with the employees and would ask the company to examine the matter and submit proposals to him.

Captain P. Cowan objected to the granting of additional powers by Ministerial Order, and Mr. Morrissey said that, although the powers taken in the Bill would be necessary, no order could come into force unless approved by the Dáil.

Mr. S. Lemass said he could see objection to the powers being asked for if they could be used to implement major changes of policy. He would regard it as a major change of policy if C.I.E. were to go into business with private firms.

Mr. Morrissey said he had in mind

products of a type not made in the country which, apart from the aspect of the company, would be of national importance.

Captain Cowan said it was a question of the House surrendering to the Minister powers which they ought to hold to themselves—the power to give by statute the necessary powers.

Mr. Lemass moved an amendment seeking to delete words which would give the company power to secure or promote the provision of transport services. The section, as it stood, proposed to define the general duties of the Board, and set out that it should not merely provide transport services, but that it should also secure or promote the provision of transport services.

Mr. Morrissey, replying, said that the Milne Report recommended that it might be found desirable to enter into agreements with small local hauliers in certain areas. That was one of the things they had in mind.

The amendment was withdrawn.

A Ministerial amendment was introduced by Mr. Morrissey as follows: "It shall be the duty of the Board so to conduct its undertaking as to ensure as soon as may be, that, taking one year with another, the revenue of the Board shall be not less than sufficient to meet the charges properly chargeable to revenue."

Captain Cowan said that the Minister should give C.I.E. power to eliminate competition which tended to make the company an uneconomic proposition.

Mr. Morrissey said he was not blinding himself to the fact that C.I.E. could not possibly pay its way this year. It was doubtful if it would pay its way next year either.

Captain Cowan asked where would C.I.E. get the revenue to enable it to meet its charges if the competition at present reducing that revenue was permitted to continue.

The amendment was carried.

Captain Cowan moved an amendment to insert a section empowering the Board, within one year, to complete the C.I.E. bus station at Store Street.

The debate on this subject was continued on February 17 and the House then adjourned until February 21.

G.W.R. (London) Operatic Society in "Rose Marie."—The G.W.R. (London) Operatic Society will present the musical romance "Rose Marie" at the Scala Theatre, Charlotte Street, W.1, at 7 p.m. on Wednesday, Thursday, Friday, and Saturday, March 1-4. The cast of 40 girls and 24 men is formed of members of the clerical staff of British Railways, Western Region, at Paddington.

Unrestricted Currency for Holidays in Scandinavia.—An economic agreement signed on January 30 by the Chancellor of the Exchequer, Sir Stafford Cripps, and the Foreign Ministers of Denmark, Norway, and Sweden, abolishes as from March 1 the £50 limit to the amount which British tourists may take to these countries. This amount, however, may be spent only on travel; no currency is allowed for other purposes such as food parcels for Britain. The agreement is reciprocal between Britain and Denmark and Sweden; Norwegian visitors to Britain will still be restricted. In addition, the British, Danish, and Swedish Governments will allow unrestricted repatriation of balances owned by residents of the three countries.

Notes and News

Steel Tyres for Carriages and Wagons.—The High Commissioner for Pakistan invites tenders for the supply of steel tyres for carriages and wagons. See Official Notices on page 235.

Traffic Inspector, Grade II, Required.—A traffic inspector, grade II, preferably not over 35 years of age, is required by the East African Railways & Harbours Administration for one tour of 40 to 48 months, with prospect of permanency. See Official Notices on page 235.

Vacanacy in Western Australia for Qualified Electrical Engineer.—Applications are invited by the Western Australian Government Railways Commission for the position of electrical engineer, mechanical branch, with a classification of engineer, class 1. See Official Notices on page 235.

Assistant Docks Mechanical Engineer Required.—The Docks & Inland Waterways Executive, 22, Dorset Square, London, N.W.1, invite applications for the position of assistant docks mechanical engineer, Humber Ports. See Official Notices on page 235.

Collision on Long Island Rail Road.—On February 18, two electric trains of the Long Island Rail Road collided head-on near Rockville Centre. Twenty-nine passengers were killed and 115 injured, and the accident is stated to be the worst experienced in New York State. It is alleged that one of the trains passed a signal at danger.

Great Indian Peninsula Railway Officers' Dinner.—On March 3, at 7.30 p.m., officers of the Great Indian Peninsula Railway are holding a reunion dinner at Oddenino's Restaurant, Regent Street, London. Sir Leonard Wilson and Colonel R. B. Emerson, late Chief Commissioners of Indian Railways, have been asked to speak at the function.

Institute of Public Administration.—On March 15, at 6.15 p.m., Mr. John Benstead, Deputy Chairman, British Transport Commission, will read a paper entitled "Fostering the Team Spirit," as part of the series of lectures on incentives to efficiency in the public services arranged by the Institute of Public Administration at the Hotel Victoria, Northumberland Avenue, London, W.C.2.

Channel Steamer in Collision with Pier.—British Railways motorcar-ferry ss. *Dinard* damaged its bows on February 19, when in thick fog it collided with the eastern pier on entering Dover harbour. After striking the pier, ss. *Dinard*, which was carrying 16 cars and 43 passengers from Boulogne, was towed to its normal berth by tugs. The ship was due for annual overhaul between February 26 and March 31 and it is expected repairs will be completed during this period. Since February 19 and until April passengers and motorcars are being conveyed by alternative routes.

Institute of Transport, Scottish Section, Annual Dinner.—The annual dinner of the Scottish Section of the Institute of Transport took place at the St. Enoch Hotel, Glasgow, on Thursday, February 9. The President, Brigadier-General Sir H. Osborne Mance, responded to the toast of "The Institute of Transport" proposed by Councillor Ernest Greenhill, former Convenor of Glasgow Corporation Transport Committee. "The Chairman" was proposed by Sir Ian Bolton, and Mr. E. R. L. Fitzpayne, General Manager, Glasgow Corporation Transport, responded. The toast of "The City of Glasgow" was proposed by Mr. Archibald Henderson, Member, Road Haulage Executive, and Sir Hector McNeill, former Lord Provost of Glasgow, replied.

Hazlehead Bridge Station to be Closed.—As from Monday, March 6, Hazlehead Bridge Station, Eastern Region, will be closed to passengers. The station will continue to deal with freight train traffic, parcels, and other miscellaneous passenger train traffic.

S.M.T. Interim Dividend.—The directors of the Scottish Motor Traction Co. Ltd. have decided to pay on April 29 a special distribution as an interim dividend on £502,989 ordinary stock in the hands of the general public of 33⅓ per cent., less tax. The dividend is based on one year's interest from British transport stock held by the company, less provisions for profits tax payable on distribution and for contingencies.

English Electric Equipment for South Australian Railways.—An order for the whole of the power and electrical equipment for ten 1,760-h.p. diesel-electric locomotives is being executed by The English Electric Co. Ltd. for the South Australian Railways. The equipment will be mounted on mechanical parts being designed and manufactured at the Islington workshops of the S.A.R. These locomotives are those referred to in an article on the report for 1947-48 of the South Australian Railways Commissioner in our November 18, 1949, issue, wherein it was stated that the order had been placed in U.S.A.

Cheap Day Air Fares to Isle of Wight.—As from May 20, Air Enterprises Limited, an Associate of British European Airways, is introducing special cheap day return tickets on its Croydon-Isle of Wight service. The tickets will be issued for all days except Fridays and Saturdays, at £2 10s., as compared with £3 8s. return normal fare on weekdays and £4 8s. on Saturdays. The service operates three times daily during the week and hourly on Saturdays; journey time is 35 min. British Railways monthly return fare from Waterloo to Ryde is £1 15s. 6d. first class and £1 3s. 8d. third class; cheap day tickets are issued daily at 17s. 9d. for trains leaving London before 11 a.m.

New Restaurant Cars for G.N.R. (I.).—On February 15 and 16, two new coaches built by the Great Northern Railway Company (Ireland) were inspected by directors, officers, and guests at Dublin and Belfast respectively. One was a dining car for use on the Dublin-Belfast ordinary main-line services and the other a buffet car for the Dublin-Belfast non-stop "Enterprise" express. Lord Glenavy, Chairman G.N.R. (I.), at the inspection in Dublin, said that new plastic materials had been used in the coaches and under test had proved a great advance on previous practice in such matters as finish and durability. At Belfast, a recording of interviews at the ceremony was made by the Northern Ireland Region of the B.B.C., and this will be broadcast at 7.30 p.m. on February 28.

Belgium and Luxembourg: Travel Currency Facilities.—It was recently decided to extend until June 30 the monetary agreement covering provision of currency to British travellers in Belgium and Luxembourg. All applications for currency for travel up to April 30 will be allowed in full up to the individual basic allowance. Subject to the Treasury decision on the basic allowance there will be

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

Crown Agents for the Colonies

TRAFFIC INSPECTOR, GRADE II, required by the East African Railways and Harbours Administration for the Transportation Department for one tour of 40 to 48 months, with prospect of permanency. Commencing salary according to age, qualifications and experience in the scale £590 rising to £690 a year. Free quarters and passages. Superannuation fund. Liberal leave on full salary. Candidates, preferably not over 35 years of age, must have received a good general education up to Matriculation or School Certificate standard and should have had substantial experience at the executive level in the operation of road transport services. Some knowledge of railway traffic working desirable but not essential. Apply at once by letter, stating age, whether married or single, and full particulars of qualifications and experience, and mentioning this paper, to the CROWN AGENTS FOR THE COLONIES, 4, Millbank, London, S.W.1, quoting M/N/22637/3E on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

THE FIRST PASSENGER RAILWAY. By Charles E. Lee. A history of the Swansea & Mumbles Railway, which extends over 136 years. Cloth. 8¼ in. by 5½ in. 91 pp. Illustrated. 5s. By post 5s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

SECTIONED PERSPECTIVE VIEW OF LOCOMOTIVE FRONT END. A notable drawing of L.M.S.R. class "7P" 4-6-2 locomotive of the latest type. Reprinted from *The Railway Gazette*, June 15, 1945. Price 2s. 6d. Post free 2s. 8d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

Western Australian Government Railways Commission

VACANCY FOR PROFESSIONALLY QUALIFIED ELECTRICAL ENGINEER

APPLICATIONS are invited by the above Commission for the position of Electrical Engineer, Mechanical Branch, with a classification of Engineer, Class I, salary range £897-£922 per annum (margins of £550-£575 over existing Federal Basic Wage). Must be competent to take charge of the whole of the electrical maintenance at Midland Junction workshops and elsewhere as required. Also capable of designing and supervising change over from 40 to 50 cycles and installation of new ring main system at main workshops. Proof of designing and practical experience, including high and low tension installation essential. Previous railway experience is an advantage. Minimum qualification for position is standard required for admission as Associate Member of Institution of Electrical Engineers or Associate Member Institution of Engineers (Australia). Employment will be governed by Association of Railway Professional Officers Award which contains liberal provisions for annual and long service leave, sick pay, etc., maximum salary payable after twelve months satisfactory service. Officers eligible for Superannuation Scheme. Passage to Western Australia will be arranged for successful applicant and dependants and half-pay allowed from time of departure from United Kingdom to arrival in Western Australia. Appointee will be required to leave for Australia as soon as passage can be arranged, also to enter into an agreement to remain in the service of the Railways Commission for three years. Departmental medical examination, covering physical fitness, vision, etc., must be passed and will be arranged before leaving United Kingdom. Applications (in duplicate) should be addressed to the Agent General for Western Australia, Savoy House, 115-116, Strand, London, W.C.2, and reach him not later than March 25, 1950. Applications must be accompanied by copies of three testimonials as to character and include a clear and concise statement of age, nationality, dependants, academic qualifications and experience, also war service (if any).

THE High Commissioner for Pakistan invites tenders for the supply of:—Tyres, Steel, for Carriages and Wagons. Forms of tender, which are returnable by March 24, 1950, may be obtained from the Commercial Secretary, Supply & Stores Department, 39/40, Lowndes Square, London, S.W.1 between the hours of 10 a.m. and 4 p.m. Mondays to Fridays, on payment of a fee of 5s. (not returnable). The Ref. SD. 5897 should be quoted on all applications for forms.

THE DOCKS AND INLAND WATERWAYS EXECUTIVE, 22, Dorset Square, London, N.W.1, invite applications for the position of Assistant Docks Mechanical Engineer, Humber Ports. The successful applicant will be responsible to the Docks Mechanical Engineer and should be a corporate member of the Institution of Mechanical and/or Electrical Engineers and, in addition, have a sound mechanical and electrical engineering experience, with particular reference to the designing, installation, and maintenance of mechanical handling machinery as applied to docks. Experience of industrial electrical distribution on a large scale is also desirable. The starting salary will be at the rate of £900 per annum, rising to £1,100 per annum. The person appointed will be expected, if eligible, to join a contributory superannuation scheme and in this respect to comply with whatever provisions are decided upon later for the Executive's staff as a whole. Applications giving full details of qualifications and experience should be sent to the Secretary, at the above address, to arrive not later than March 8, 1950.

STATION DESIGN. A striking example of modern British practice at the important wayside station of Luton. Reprinted from *The Railway Gazette*, July 7, 1944. Price 1s. Post free 1s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

RAILWAY AMALGAMATION IN GREAT BRITAIN. By W. E. Simnett. An authoritative account of the course of railway amalgamation in Great Britain up to the end of 1923. Cloth. 8¼ in. by 5½ in. 276 pp. 15s. By post 15s. 7d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

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no limit to the number of British tourists who may visit Belgium and Luxembourg in May and June. From July 1 and for the remainder of the holiday season travel by British tourists in these countries will be limited by the total of £1,250,000 unless it is later found possible to increase this figure.

Dundalk, Newry & Greenore Railway Company.—The next ordinary general meeting of the Dundalk, Newry & Greenore Railway Company will be held at Euston Station, London, N.W.1, on March 9, at 3.30 p.m.

Institution of Railway Signal Engineers.—The annual general meeting of the Institution of Railway Signal Engineers will be held at 5.30 for 6 p.m. on March 17, at the Institution of Electrical Engineers, Savoy Place, London, W.C.2.

Carlisle & District Transport Club.—Mr. David Blee, Member, Railway Executive, will read a paper on "Enterprise and British Railways" before the Carlisle & District Transport Club on March 17. The meeting will be held in the County Hotel, Carlisle, at 7.30 p.m.

Manx Electric Railway.—The report for the year ended September 30, 1949, of the Manx Electric Railway Co. Ltd. states that, although the summer season of 1949 was good as regards the number of tourists, reduced spending power adversely affected railway receipts. Total receipts were £63,831, of which £55,462 was in respect of passenger traffic. The operating profit, after deduction of interest on debenture stock, was £6,166, which, together with £18,922 surplus on taxation account and balance of net revenue account as at September 30, 1948, made a total of £25,088. After transfer of £10,000 to general reserve and of £2,000 to the first mortgage debenture stock sinking fund, an ordinary dividend was declared of 2 per cent., with a balance of £10,284 carried forward. It was not possible to show in the accounts the new capital structure, which was sanctioned by the Courts in the Isle of Man in November last. The direction and control of the company were transferred from London to Douglas on October 1, 1949.

Institution of Locomotive Engineers.—The annual luncheon of the Institution of Locomotive Engineers will be held at the Dorchester Hotel, London, W.1, at 1 p.m. on Friday, March 17. The Chairman will be Mr. W. Cyril Williams, President of the Institution.

London Midland Region (London) Orchestral Society.—A vocal and instrumental concert will be presented by the London Midland Region (London) Orchestral Society at the Shareholders' Meeting Room, Euston Station, on Friday, March 10, at 7.15 p.m.

John Brown & Co.: Purchase of Firth Brown Tools.—An extraordinary meeting of John Brown & Co. Ltd., on January 27, approved the purchase of Thos. Firth & John Brown engineers' tools interests (referred to in our January 20 issue). Lord Aberconway, Chairman, said that these interests comprised all the £915,055 ordinary stock in Firth Brown Tools Limited, and also two smaller interests to be sold to Firth Brown Tools before completion of the purchase. The purchase price of the ordinary stock was £978,000, of which £17,500 was to be paid on completion of the purchase, and the balance to be left as a loan owed by John Brown & Co. to Thos. Firth & John Brown Limited.

Permanent Way Institution, Irish Section.—The monthly meeting of the Irish Section of the Permanent Way Institution was held on February 16 in the conference room of the Great Northern Railway (Ireland), Great Victoria Street Station, Belfast. The Irish Vice-President, Mr. N. C. Cain, Civil Engineer, Ulster Transport Authority, was Chairman and the Secretary, Mr. T. A. Carson, Chief Assistant to the Civil Engineer, Dublin, G.N.R. (I.), was also present. Some interesting discussions took place including one concerning how soon speed restrictions may be lifted after laying new track. Among those who spoke were: Mr. H. Cochrane, District Engineer, G.N.R. (I.); Mr. R. Lloyd, Retired District Engineer, G.N.R. (I.). The meeting next month will be held at Limerick Junction when final arrangements will be made for the forthcoming visit of the Irish Section to Liverpool, to inspect the new signalling installation at Lime Street.

Rice & Co. (Northampton) Ltd. New London Office.—The address of Rice & Co. (Northampton) Ltd., Eagle Foundry, Northampton, new London office is 6, Broad Street Place, London, E.C.2; telephone number Royal 1461.

Devon General Omnibus Company.—A final ordinary dividend of 10 per cent. is recommended by the directors of the Devon General Omnibus & Touring Co. Ltd. This makes 20 per cent. for 1949 and is the same as for last year. The directors also recommend a bonus of 15 per cent. as before. Net profit for the year, subject to audit, was £159,400, against £177,753.

Institute of Transport, Northern Ireland Section, Annual Dinner.—The annual dinner of the Northern Ireland Section of the Institute of Transport took place on Friday, February 10, at Belfast Castle. The President, Brigadier-General Sir H. Osborne Mance, responded to the toast of "The Institute of Transport" proposed by Mr. K. D. L. Sinclair, Chairman, Belfast Harbour Commissioners. Mr. T. B. Andison proposed "The Government and Prosperity of Northern Ireland" and the Minister of Commerce, Mr. W. V. McCleery, responded. The toast "Our Guests" was proposed by Mr. R. L. Charlesworth, Steamship Superintendent, British Railways, Belfast; responses were

made by Mr. A. O'N. Chichester, Mayor of Ballymona, Mr. D. H. Alexander, Principal, College of Technology, Belfast, and Mr. R. S. C. Davison, President, Belfast Chamber of Trade.

Madras & Southern Mahratta Railway Co. Ltd.—A general meeting of the Madras & Southern Mahratta Railway Co. Ltd. will be held at "Guildcroft," 109, Epsom Road, Guildford, on March 10, at 11.30 a.m., for the purpose of having an account laid before the members for approval, and of receiving the liquidator's reports showing how the winding-up of the company has been conducted and the property of the company disposed of.

Forthcoming Meetings

February 24 (*Fri.*).—Institution of Electrical Engineers and Institution of Mechanical Engineers, joint meeting at the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, at 5.30 p.m. "The Application of Gas-Turbine Technique to Steam Power," by Mr. J. F. Field.

February 24 (*Fri.*).—Stephenson Locomotive Society, Midlands Centre, at the Imperial Hotel, Birmingnam, at 7.15 p.m. "The Midland Railway and its Influence on Operating," by Mr. O. S. Nock.

February 25 (*Sat.*).—North East Coast Institution of Engineers & Shipbuilders, Student Section. Visit to Robert Stephenson & Hawthorns Limited.

February 28 (*Tue.*).—Institute of Transport, informal luncheon at the Connaught Rooms, Great Queen Street, London, W.C.2, at 12.45 for 1.15 p.m. Speaker: Lord Latham, Chairman, London Transport Executive.

February 28 (*Tue.*).—Institute of Transport, Metropolitan Graduate & Student Society, at 80, Portland Place, W.1, at 5.45 for 6.15 p.m. "British Railways—Possibilities in Adjustment and Development of Services," by Mr. A. F. Wallis.

February 28 (*Tue.*).—Permanent Way Institution, London Section, at Denison House, 296, Vauxhall Bridge Road, S.W.1, at 6.30 p.m. "Nationalisation and the men in the Civil Engineering Department," by Mr. J. C. L. Train, President.

March 1 (*Wed.*).—Institute of Metals, Manchester Metallurgical Society, at the Engineers' Club, Albert Square, Manchester, at 6.30 p.m. "Continuous Casting of Metals," by Mr. J. W. Cuthbertson. Annual general meeting.

March 1 (*Wed.*).—Belfast Association of Engineers. "Electrode Steam Raising Boilers," by Mr. J. A. Talien.

March 2 (*Thu.*).—Institution of Electrical Engineers, Savoy Place, London, W.C.2, at 5.30 p.m. "Some Electrical Methods of Measuring Mechanical Quantities," by Mr. F. J. Woodcock.

March 3 (*Fri.*).—Institution of Railway Signal Engineers, at the London Transport Executive Signal School, Earls Court Station, S.W.5, at 6.15 p.m. "Single Line Control," by Mr. D. C. Doswell.

March 3 (*Fri.*).—Railway Club, 57, Fetter Lane, London, E.C.4, at 7 p.m. "The Metropolitan District Railway," by Mr. H. W. Bardsley.

March 3 (*Fri.*).—Belfast Association of Engineers, annual dinner and dance, at the Grand Central Hotel, Belfast, at 7.30 for 8 p.m.

Railway Stock Market

Strength and activity was displayed by stock markets, particularly in industrial sections, though best levels were not fully held. British Funds, after hesitancy, also participated in the upward movement. The City assumed that a change of Government would mean abolition of many controls, perhaps an end of the share bonus ban, and relaxation of dividend limitation.

The latest export trade figures helped some sections, while sentiment was also assisted by talk of tax reductions in the April budget in the event of a change of Government. A rally in British Funds was helped by the improved figures for small savings. There was some profit-taking in cements, chemicals, and shares of other groups still threatened (before the election) by nationalisation, but earlier small declines had attracted buyers at the time of going to press, and further small but widely spread gains had been recorded in iron and steels.

With business concentrated mainly on domestic issues, there was only limited interest in foreign rails. Manila stocks were bright, the "A" debentures rising to 78 and the "B" to 68, while the preference units rose sharply to 8s. and the ordinary shares improved to 1s. 9d.

There was continued uncertainty in Leopoldina stocks, which were inclined to move sharply on small buying or selling. After a rally, prices eased with the ordinary at 9, the preference 26, and the 4 per cent. and 6½ per cent. debentures 91½ and 125 respectively. Leopoldina Terminal 5 per cent. debentures eased to 95 and the £1 ordinary units were 2s. 7½d. There was also a downward tendency in Great Western of Brazil, which came back to 131s. 3d. San Paulo 10s. units sold around 13s. 9d. and Brazil Rail gold bonds were 42½.

Antofagasta ordinary and preference were 7½ and 46 respectively. Nitrate Rails remained held firmly and quoted at 75s. and there have been moderate fluctuations in United of Havana stocks with the 1906 debentures at 25½.

Canadian Pacifics at $28½ have been little affected by the maintained dividend, which was expected; the 4 per cent. preference were 65 and the debentures 95¼. In other directions, White Pass Yukon first debentures have marked 176 and the 6 per cent. debentures around 70. Elsewhere, Nyasaland 3½ per cent. debentures marked 89. National of Mexico 4½ per cents changed hands around $23½ and the 4 per cents at $21¾.

There has been fair activity around 78 in La Guaira Caracas while the debentures transferred around 87½, and Bolivar "C" debentures were 54½.

Bus and road transport shares remained firmly held. Buyers, attracted by the hope that the election might mean an end of nationalisation of road transport, found that in many cases shares were not easy to obtain in any amount around prices indicated by current quotations. Southdown kept firm at 125s., Lancashire Transport were 83s., West Riding 66s., but Scottish Motor ordinary eased to 82s. after an earlier further improvement. B.E.T. deferred stock kept active, as usual, and at £5¼0 was higher on balance.

Iron and steels reflected the more active conditions on the Stock Exchange, and further small but fairly general gains were recorded. South Durham were good at 33s. with the "B" strong at 14s., the latter on higher dividend prospects if there were an end of nationalisation and also of dividend limitation. Colvilles improved further to 36s. 3d., but Dorman Long at 32s. 3d. reacted. Elsewhere, Guest Keen were 42s. 3½d. and T. W. Ward 56s. 4½d.

Locomotive building and engineering shares again moved narrowly, both Beyer Peacock and North British Locomotive changing hands around 19s. 1½d. while Vulcan Foundry were 18s. 9d. and Wagon Repairs 5s shares 16s. 6d. Gloucester Wagon were 48s. and Hurst Nelson 58s. 6d.

British Transport stocks in common with other nationalisation stocks have participated in the uptrend in British Funds. Transport 3 per cent. (1978-88) had strengthened to 89¼ at the time of going to press.

There was much discussion in the City whether, if there were a change of Government, a sharp upward trend in interest rates was to be expected. The prevailing view was that this was unlikely. It was thought that whatever the outcome of the election, British Funds were probably the one section of markets where prices were more likely to rise than fall.

Traffic Table of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffics for week: Total this year	Traffics for week: Inc. or dec. compared with 1947/48	No. of week	Aggregate traffics to date: Total 1948/49	Aggregate traffics to date: Increase or decrease
				£	£		£	£
South & Central America	Antofagasta... ...	811	12.2.50	64,680	— 790	6	418,934	+ 13,810
	Costa Rica	281	Dec., 1949	c357,783	— c617,400	26	c5,155,862	— c917,757
	Dorada	70	Nov., 1949	23,909	— 8,758	48	320,787	+ 14,879
	Inter. Ctl. Amer. ...	794	Dec., 1949	$1,259,960	+ $91,260	52	$12,395,066	— $938,884
	La Guaira	22¾	Jan., 1950	$78,562	— $31,734	4	$78,562	— $31,734
	Nitrate	382	15.2.50	21,206	+ 4,320	6	67,493	+ 20,354
	Paraguay Cent. ...	274	10.2.50	Ꞩ129,995	+ ₲5,516	32	₲4,546,788	+ ₲1,187,058
	Peru Corp. ...	1,050	Jan., 1950	$6,454,700	+ $1,906,457	31	$40,250,658	+$13,154,984
	,, (Bolivian Section)	66	Jan., 1950	Bs.9,523,000	+ Bs.838,649	31	Bs.72,392,164	+Bs.11,811,706
	Salvador	100	Oct., 1949	c68,000	— c14,000	17	c313,000	— c16,000
	Taltal	154	Jan., 1950	14,450	+ 4,535	31	90,155	+ 32,820
Canada	Canadian National†	23,473	Dec., 1949	15,090,000	+ 83,000	52	166,908,000	+ 3,151,000
	Canadian Pacific† ...	17,037	Dec., 1949	10,039,000	— 320,000	52	151,084,000	+ 2,667,000
Various	Barsi Light* ...	167	Jan., 1950	31,237	+ 2,647	44	298,770	+ 22,522
	Egyptian Delta ...	607	20.1.50	20,062	+ 1,776	42	552,314	— 44,667
	Gold Coast ...	536	Dec., 1949	286,620	+ 34,957	41	2,181,179	+ 280,809
	Mid. of W. Australia	277	Nov., 1949	31,973	+ 1,942	22	141,839	— 1,905
	Nigeria	1,900	Nov., 1949	497,074	+ 25,415	35	3,864,775	+ 217,279
	South Africa ...	13,347	28.1.50	1,515,737	+ 110,425	43	63,937,318	+ 5,127,355
	Victoria	4,744	Oct., 1949	1,792,078	+ 371,156	17	—	—

* Receipts are calculated @ 1s. 6d. to the rupee

† Calculated at $3 to £1